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Transport and Steel Bill Programme

THE Government's Transport Bill will be introduced next week, and will have its second reading one or two weeks later. The allocation of time, two days for the second reading and possibly ten days for the committee stage, is fairly generous for a Bill of this length and presumably reflects the changes that have been made since the text was published. General opposition to the principle of the levy on road hauliers, in particular, has led to second thoughts in that respect. Also, the passages of the Bill dealing with a decentralised administration of the railways have been elaborated from the sketchy details given in the original text, to provide an organisation in which local management will have wider scope for initiative in administrative and commercial affairs. The Minister has consulted with a great many organisations concerned with transport since the Bill was published and the results of these discussions will be seen when it receives its second reading. Various authoritative references to modifications now embodied in the text are a welcome sign of willingness on the part of the present Government to seek and accept advice from expert sources on a matter of such national importance as transport, and it will be well if a similar open-minded approach is in evidence on the Opposition benches during the debate. With the time allowed for discussion in the House, there should be no need to apply guillotine procedure, and should such action become necessary, it could be only as a result of deliberately delaying tactics. It is hoped that at least part of the Bill will be passed on its Committee stage before Christmas, and the remainder early next year. The Government aims at passing both the Transport and Steel Bills by March, 1953. The latter will have its second reading in November or the month after, and may also be given ten days for the Committee stage.

More Steel for Railways

REPLYING to a parliamentary question on the recent placing of orders for railway wagons with private builders, to which we referred in our September 26 issue, the Minister of Transport stated on October 27 that he expected an increase in the allocation of steel to British Railways workshops for the period beginning January 1, 1953. For the current year no new programme of carriage building could be undertaken and locomotive building was cut by half, available resources being concentrated on maintenance of track and construction of new wagons. The Minister's announcement follows encouraging figures for steel production in September, which at 17,149,000 tons was a record and 9 per cent above the level of September last year. On the same day the Minister replied to another questioner that provision for capital investment by the British Transport Commission in 1953 allowed for an increased expenditure compared with 1952. He made it clear that this meant that the money required for more materials would be available even if the materials themselves were not necessarily at hand. The better steel position gives hope that the situation which occurred last year, of the B.T.C. not being able to use all its capital because of shortage of materials, will be remedied in one direction at least.

Sir Harold Clapp

THE career of the late Sir Harold Clapp, some details of which are given in our personal columns this week, resembles that of Lord Ashfield in that both men gained valuable experience and achieved responsible positions on urban electric railways in the U.S.A. Clapp, however, had electric traction experience before leaving his native Australia, and later in his career both in America and in Australia his activities embraced far more than urban transport. As Chairman for nearly 20 years of the Victorian Railways Commissioners he was instrumental in introducing many improvements, and his tenure of that office saw the inauguration of the "Spirit of Progress," the Victorian Railways' contribution to the Melbourne-Sydney luxury service, and his chairmanship of the Interstate Commissioners' Conference. Clapp left the Victorian Railways when asked by the Commonwealth Government shortly before the second world war to assume charge of Commonwealth Aircraft Construction, but three years later renewed his connection with railways on appointment as Director General of Land Transport in Australia, a post of vital importance involving adjustment of Commonwealth transport resources to the needs of the war with Japan. His subsequent preparatory work on unification of railway gauges in Australia contributed to the solution of a problem on which, however, only slow progress is being made.

Four Years of British Railways

MR. C. P. HOPKINS, Chief Regional Officer, Southern Region, gave an encouraging account in his Presidential Address to the Railway Students' Association on Wednesday of progress in operating efficiency during four years of nationalisation. He called his paper "On Facing Changes," because of the prevailing uncertainty in transport affairs and the uneasiness engendered in some minds by this situation; and the first part of his talk showed how the great changes of 1948 had been mastered. A comparison between 1948 and 1951 showed an increase of 10 per cent in freight ton-miles with 8 per cent more train-miles and 9 per cent fewer wagons. Passenger traffic comparisons were affected by underlying conditions that did not allow efficiency to be judged as accurately from similar figures,

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but there had been improvements of the order of 7 per cent in passenger miles per train engine-hour and total engine-hour between 1947 and 1951. Speed restrictions on main lines were 33 per cent fewer in the summer of 1952 than in 1948. Mr. Hopkins reminded his audience that the conditions of 1951 were very different from those of 1947, in which post-war problems had only begun to be tackled. On the other hand the improvements quoted in his paper had been effected in a period of what had seemed the most momentous organisational change in British railway history.

Facing Further Changes

IN the latter part of his paper Mr. Hopkins urged the view that railwaymen need not let themselves be perturbed by the bogey of change and its dangers. Coping with changes of one kind or another was an integral part of the transport operator's job. Already there had been a general climb of railway standards back towards the level of pre-war years despite the change of organisation in 1948. Some might say it was this organisational change that had brought the better results, but he did not think that wholly true. At the same time there had been a mutually educative interchange of ideas and people. Mr. Hopkins thought, however, that the main cause of the general improvement was that the people who were carrying, or training to carry, particular responsibilities before 1948 were those who had continued the good work after 1948 under the new conditions. The organisations of the grouped railways before nationalisation had been modified from time to time without calamitous results and it remained the duty of railwaymen to face whatever changes might come, as they had shown themselves able to do in the past.

Overseas Railway Traffics

SUCCESSIVE advances by £37,280 and £16,470 were made in Antofagasta (Chili) & Bolivia traffics for the two weeks ended October 17, which amounted to £172,510 and £165,480 respectively. As a result of a steady improvement in receipts throughout most of the current financial year, aggregate traffics for 42 weeks were £1,376,220 higher at £6,416,700. Victorian Railways receipts for June, the last month of the financial year 1951-52, were up by £125,545 at £1,938,478 and they continued to rise in July, with a £329,462 increase to £2,062,237. The railway services receipts for July were £2,052,108 and contributed £327,965 to the improvement in total revenue for the month. During the fortnight ended September 27, South African Railways traffics fell by £99,866 to £3,829,142. The largest decrease was in the week ended September 27, when traffics at £1,929,442 were down by £57,681. On the aggregate, though, South African receipts for the 29 weeks to September 27, which amounted to £50,621,774, were still £1,813,783 above those for the equivalent period of the previous year.

The Burden of Railway Wage Increases

ACCEPTANCE by the Railway Executive and the three railway trades unions of the wage increases awarded by the Railway Staff National Tribunal involves additional expenditure by the British Transport Commission on wages and salaries of £10,000,000 in a full year. This comes at a time when the railways would seem to be committed to spending some £15,000,000 in the near future on extending automatic train control to all principal lines, for, as recorded last week, progress is well advanced towards a decision on the type of apparatus to be used. It will be unfortunate now if it is decided that this additional expenditure must be met by further increasing railway charges. Much has been done and is being done to effect economies in railway operation, but the steps already taken probably leave but restricted scope for further economies. Even with the increase in freight rates last January and the passenger fare increases during the current year, B.T.C. traffic receipts for 1952 were likely to exceed those for last year by only £40,000,000—not a large margin bearing in mind increases in prices—before the latest burden of higher wages was imposed, apart from the cost of installing A.T.C. Traffics recently have not fulfilled expectations, particularly in merchandise and passenger traffic where there is competition with the roads, and further increases in rates and fares may well price the railways out of the transport market.

British Transport Commission Statistics

THE trend figures which cover the first 36 weeks of 1952, up to the end of Period 9, the four weeks ended September 7, show little variation in British Railways staff as classified in these statistics in the three groups: salaried, operating and miscellaneous, and maintenance. The classification is not detailed enough to give comparability with last year. The particulars given for Period 9 show some increases since January in the guards, signalman and porters, in the carriage and wagon cleaner, and in the civil engineering maintenance categories. From this, in the knowledge that something of a trade recession in the North and elsewhere has increased the willingness of men displaced from other jobs to take up railway employment, it would seem that the manpower situation is more satisfactory in those grades where there was a severe manpower shortage early in the year. Period 9 shows increases over the preceding period and over last year in tonnages through B.T.C. ports, and a sharp rise in coal shipments from Scottish ports—mainly those in Eastern Scotland which belonged to the former North British and Caledonian Railways.

Confines of Braking

BRAKING has a less extensive literature than speed, and it may even be necessary to recall that the speed record of the L.N.E.R. Pacific *Mallard* was achieved in the course of brake trials. This week we begin publication of a series of articles which examines the theory of the subject and the various limitations that occur in practice. A large number of factors makes it necessary to reduce braking rates below the highest possible, which itself is controlled by the coefficient of friction between wheel and rail. These range from the comfort of passengers, who are affected by the rate at which braking changes rather than the actual braking rate, to the material composition of brake blocks and the effect on them of the weather. The discussion of these and many other elements in braking shows the various directions in which there is scope for further research and points to directions in which apparatus could be improved. Certain measures suggested would increase the cost of equipment, but the author points out that expenditure should be examined in relation to the possibility of higher braking rates leading to economies by enabling the trains required for a given service to be reduced.

Electric Horse Experiments

A WIDESPREAD experiment in the operation of electric battery vehicles is being undertaken by British Railways. The new electric horses now being set to work in sixteen towns and cities will have the opportunity of showing their capabilities in comparison with the familiar mechanical horse, of which 8,000 are in service on railway duties. An electric tractor will have the advantage of instantaneous starting in all weathers, and it is clear from the specification on another page that the unit benefits in range and haulage capacity from the latest developments in battery technique and the economical use of the power available. Normal range of operation per battery charge is 25 miles. A standard mechanical horse type of trailer is hauled, and although the unit is nominally a two-tonner the payload is actually 2½ tons. Maximum speed with load on the level is 18 m.p.h. There is a tendency when discussing electrification to overlook the battery as a means of storing power from the national supply and releasing it when required. The new electric horse experiments, which are being conducted with the co-operation of Austin Crompton Parkinson Electric Vehicles Limited, will demonstrate these possibilities in arduous conditions of service.

August-September Operating Results

IN the autumn of 1951, British Railways were expected to have difficulty in dealing with an abnormally heavy traffic during the approaching winter. These fears proved to be groundless and there can be no occasion for any such alarm this year. No. 9 of *Transport Statistics*, for the four-week period to September 7, points to a recession in the business transacted by the State-owned transport undertakings.

On British Railways, originating tonnage declined by 864,000 tons, or 4 per cent. The decrease followed on one of 156,000 tons in the previous period. The downward trend of merchandise forwardings is especially serious. In the ninth period 295,000 tons less were put on rail, making the total decrease during the first 36 weeks of the year no less than 1,647,000 tons. Coal and coke tonnages also decreased by 629,000 (4·8 per cent) in the four weeks to September 7, the Eastern Region being the only one to despatch a moderately larger amount. In contrast each of the four "heavy" English Regions had an increase in mineral tonnage, though the rise for the whole system amounted only to some 60,000 tons (1·3 per cent).

The net ton-mileage of 1,611 million was 73 million below 1951 (4·3 per cent). The decrease was general though the North Eastern Region nearly broke even through working 4·7 million more mineral ton-miles (12·3 per cent). At 72 miles the average length of haul of all classes of traffic was about half a mile shorter than a year ago. Merchandise and minerals travelled further, but the average ton of coal was hauled a mile less and that swayed the overall result, as coal produced 46 per cent of the total ton-miles.

British Road Services

The activities of British Road Services were reduced sharply in the August-September period. Their traffic of 3,164,000 was lower by 485,000 tons (13·2) per cent) and vehicle miles were curtailed by nearly 12 per cent. Neither the number of serviceable vehicles stored nor the number under repair is stated. Particulars would have been useful at a time when the future of State-owned road haulage is being decided.

The number of road haulage employees was 74,356, compared with 80,212 at the end of 1951. Allowing for this saving of 5,856 people, or 7 per cent of the 1951 establishment, the manpower engaged remains high in proportion to work done, one person being employed for every eleven tons carried in an average week. Last year British Road Services operated at a ratio of 96 per cent and finished with a deficit of £1,106,400. It will be surprising if they make a better showing at the end of 1952, as gross receipts again decreased by 6·2 per cent in the four weeks to October 5.

Railway Freight Statistics

British Railways were able to handle the diminishing volume of traffic in Period 9 in 69,000 fewer freight train hours (5·6 per cent). That meant working 247,000 fewer freight train miles 2·3 per cent). The average train was made up of 31 wagons, one less than a year ago, and its load dropped by 3 tons to 154 tons. Its speed improved by nearly a third of a mile to 9·03 m.p.h., but was slower than in the four previous periods from May onwards. The London Midland Region failed to reach a speed of 8 m.p.h., despite decreases of 4·7 per cent in tonnage, 6 per cent in ton-miles and 3·4 per cent in train load. The other "heavy" Regions recorded a speed of over 9 m.p.h.

British Railways turned out 1,147 net ton-miles in a train engine hour, a better result than in either 1951 or 1950. Oddly, the London Midland and Western Regions reported the same figure of 1,123—a sad falling off in the Western return, which in 1950 was well over the general average and still further ahead of the London Midland Regional average. The Scottish Region could muster only 957 net ton-miles, 46 below 1951. The all-line showing was saved by the Eastern Region's output of 1,267 and the North Eastern 1,481. The former was 32 ton-miles above 1951 and the latter 56 ton-miles ahead, or close on 4 per cent.

The number of loaded wagons forwarded—2,604,000—was down by 127,000 (4·6 per cent), but the average wagon load at starting point of 8·56 tons was between 2 and 3 cwt. heavier. British Railways worked 231 wagon miles in a train engine hour. The London Midland and Western Regions fell below the general level with outputs of 224 and 216 wagon miles, respectively. Their poor performance was to some extent redeemed by returns of 253 wagon miles from the Eastern Region and 282 from the North Eastern.

Electrified Freight Lines

Little progress was made in working some 20 miles of the Manchester-Sheffield-Wath electrified lines. Traffic has shrunk for the time being. Only 20,361 freight train miles were worked against an average of 25,000 for the first five periods after the opening in March. Train speed was 7·47 m.p.h.; in March it was 7·6 m.p.h. and advanced to 8·5 m.p.h. in May. Wagon miles numbered 783,000, compared with an average of 920,000 during the first five periods, and were worked at the rate of 126 in a train engine hour, less than the number worked in any four weeks from March to June. In addition to freight train miles, the electric locomotives turned out 13,650 "assisting required" miles and 10,366 "assisting not required and light" miles. Altogether 45,075 engine miles were worked and, as 10 of the 48 electric locomotives were under repair, in all probability the cost of working would be high.

Passenger Traffic Trends

In the month of July, the number of passenger journeys originating on British Railways was 89,957,000, a decrease from 1951 of 4,530,000 (4·8 per cent). The Southern Region alone lost 2,762,000 passengers (8·1 per cent). In the first four months of the year 11,366,000 more people went by rail, but 10,900,000 fewer travelled in May, June, and July. A decrease of 6,229,000 journeys in the Southern Region during these three months proves how easily passenger traffic can be affected by any interference with fares.

First class travel declined in July, though not at such a headlong pace as in June. Journeys totalled 1,763,000, a decrease of 297,000, or 14·4 per cent. Here again the Southern Region was hit hard, losing 88,000 of its first class passengers (16·4 per cent). The rate of decrease was almost as bad on the London Midland Region and represented the loss of 124,000 journeys. In Scotland, the volume of first class travel is shrinking rapidly and even the Western Region, that last stronghold of old traditions, reported a decrease of 9,000 journeys, or 4·4 per cent. During the four months from April to July, receipts from first class travel were 3 per cent less. If these trends persist, a complete review of existing first class facilities in relation to seat occupation cannot be postponed much longer.

Road Passenger Transport

Both the Tilling and the Scottish Group of road passenger services recorded an increase of 3 per cent in passenger journeys in the August-September period. In effecting this advance the Tilling Group worked 3·1 per cent more car miles and the Scottish Group 4·9 per cent above 1951.

The road carriers could cope with the extra mileage because on September 7 they had nearly 400 more vehicles available than in the year before. Only 312 vehicles, or 2·1 per cent of the stock, were under repair. At the same date British Railways had 680 fewer passenger train vehicles available than in 1951, because 5,067, or 8·7 per cent of the stock of coaching vehicles, were under or awaiting repair. The ample supply of stock and the favourable repair position helped British Road Transport to collect 10·8 per cent more money from the public while British Railways were struggling to advance their passenger receipts by 1·3 per cent.

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Colonel Wilson's Annual Report

ALTHOUGH Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, in his annual report for 1951 felt obliged to call the year a particularly disappointing one, both the number of casualties in train accidents and the numbers of accidents reported under all main headings comparing unfavourably with the high standard achieved in the two previous years, he stressed the fact also that the railways were faced during the first half of that period by "a combination of operating difficulties which were unprecedented in time of peace." Brief reference to the report was made in our September 26 issue. It must be remembered also, as the report points out, that too much attention should not be given to casualty figures, regrettable as they must always be, as a chance circumstance often suffices to affect them considerably. This has been painfully emphasised since the issue of the report by the disaster at Wealdstone on October 8 last, when the presence of a fast train on the adjacent track seriously aggravated the effects of the original collision. If, however, the number of accidents itself increases and is accompanied by evidence that inattention and carelessness, or defective equipment, are being more frequently met with, there may be some ground for disquiet. Among the difficulties met with in 1951 were bad weather, shortage of coal, raw materials and technical staff, and much serious traffic congestion. Fortunately the 1951-52 winter, when weather was good, saw the success of measures taken to ensure the free flow of traffic, which brought considerable encouragement to all concerned.

The steady decline in passenger traffic since the war ceased in 1951 and passenger-journeys and passenger-miles rose by 0·7 and 1·7 per cent. respectively, while freight traffic, in net ton-miles, did so by 3·5 per cent. The total of 22·9 millions was "the highest recorded in time of peace and was achieved with an increase of only 0·5 per cent. in the total freight train-mileage. The route mileage open was reduced during the year by 114 to 19,580, mainly by the closing of unremunerative branch lines." It is to be emphasised that the figure of 283 fatalities in all movement by rail is "the lowest yet recorded," representing 0·7 person killed per million train-miles. Allowing, however, for the fortuitous effect of local conditions, train accident casualties are the ultimate criterion of safety in operation, if they are considered over the years, as Colonel Wilson stressed on a former occasion. It is very satisfactory to note that in 1951 "there were signs of a halt in the drift away from railway employment which has been such an unwelcome feature of the past two or three years."

Failure of the Human Element

The number of train accidents, properly so called, rose to 1,280 after the steady decline from 1,388 in 1947 to 1,156 in 1950, but failures of permanent way, structures and rolling stock were fewer, being 3,436 compared with 3,609 in 1950 and 4,062 in 1949. Total casualties in train accidents came to 1,006 compared with 611 in 1950; the 1946-50 average was 864. Fourteen such accidents involved fatalities and accounted for the deaths of 43 passengers, 4 railway servants and 8 other persons, occupants of road vehicles at level crossings; 36 of the passenger fatalities came from three accidents, at Doncaster, Weedon, and Ford. Human failure of the operating staff accounted for 43·7 per cent (559) of the cases and train crews were primarily responsible for 158 collisions and 36 derailments, signalmen being accountable for 30 and 15 respectively. Technical defects, in many instances with human failure taking part, were responsible for 193 accidents, including 26 collisions and 136 derailments. Of the 528 accidents classified under other causes, or 41·2 per cent. of the total, misconduct of the public was responsible for 161, including 43 collisions with road vehicles at crossings, resulting in 8 fatalities and 32 injuries. The remainder, 118, besides fires in trains, included accidents caused by passengers opening carriage doors foul of vehicles or structures.

It proved necessary to hold 14 inquiries into train accidents, the reports on which have been summarised in our columns as they appeared. Their leading features were as follow:—

—	Collisions	Derailments	Running into Obstructions	Fires in trains	Miscellaneous	Total
1. Failure of train crew (including guard):—						
(a) Passing signals at danger	25	15	24	—	—	64
(b) Other irregularities or want of care	133	21	21	—	1	176
2. Failure of signalman:—						
(a) Irregular block working	15	1	—	—	—	16
(b) Other irregularities or want of care	15	14	7	—	—	36
3. Failure of other operating staff	66	11	57	2	17	153
4. Failure of train crew and/or signalman and/or other operating staff	48	28	28	—	1	105
5. Faulty loading	4	5	—	—	—	9
6. Technical defects:—						
(a) Engines	5	22	5	5	1	38
(b) Vehicles:—						
i. Drawgear	10	22	1	—	—	33
ii. Other items	10	35	1	4	3	53
(c) Track or signalling apparatus	1	57	10	—	1	69
7. Other causes:—						
(a) Snow, landslides, floods	1	2	15	—	—	18
(b) Animals on the line	—	—	98	—	—	98
(c) Misconduct of the public	43	1	58	31	28	161
(d) Miscellaneous	43	20	51	124	13	251
Total	419	254	376	166	65	1,280

At Alloa Junction on January 10, 1951, while block and telephone communication was interrupted by a heavy snow storm, a light engine was run into by a passenger train, the driver of which was not sufficiently alert, although he had received a warning and had passed a flagman posted at a failed distant signal. Two passengers were killed. On March 16 a very serious accident occurred at Doncaster, when a train just starting away became derailed at a crossing, which it was considered to have burst, when passing from slow to main line at too high a speed, resulting in a coach being carried broadside on and crushed against the pier of a bridge; 14 passengers lost their lives. Local circumstances were such that a 10 m.p.h. speed restriction was laid down for such movements but the train was travelling at between 20 and 25 m.p.h. This case raised the question of the detection of flaws in crossing bolts and it was considered advisable to make an investigation to determine whether they should be renewed periodically, depending on the character and weight of the traffic over a crossing; also to eliminate steep cant gradients through connections whenever possible. A scheme was therefore prepared for this location, where speeds of 20 m.p.h. had been accepted for a considerable time and no steps taken to ensure the restriction being obeyed. Speed indicators were again recommended. The Railway Executive is now fitting them to all new passenger and mixed traffic engines.

At Pollokshields East on April 21 a man only just qualified to act was left in a signal box by a regular signalman, who should have supervised him but absented himself without leave. A train stopped in section from loss of vacuum and this man, whose judgment was correct, allowed

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himself to be persuaded by an experienced colleague at the box in rear, who was entirely mistaken, that the section was clear, so that another train became admitted to it. Three passengers were killed in the collision. There was lack of effective supervision and attention was drawn to the importance of stationmasters and inspectors knowing how to exercise authority.

At Stobcross on June 9 a signalman forgot a train standing at his tunnel home signals. His state of health—he was over retiring age—was such that he was liable to forgetfulness and he was able irregularly to accept the following train owing to two defects in the block apparatus, which gave him a false treadle release. Fortunately the collision was not a fatal one. Attention was directed to the importance of thorough and regular medical examination of men who have reached a certain age and are called on to make quick decisions and exercise sustained attention. Colour-light signalling with track circuit is to be put in on the Glasgow underground line, where working conditions are extremely difficult.

The year was remarkable in involving for the first time since the serious Abermule accident of 1921, passenger trains meeting another train head-on in a single-line section. The first case occurred near Fishguard and Goodwick on June 11 when an "auto" train left against the starting signal at danger and without the electric train staff, attempts to attract the driver's attention passing unheard amid the noise of detonators placed on the line by the fireman, who was not attending to his work, as a send-off to a wedding party. This led to instructions being issued to prohibit such wrong use of detonators. In the second case, at Dalguise on August 1, a driver, whose attention had been momentarily distracted by the restless behaviour of some schoolboys, left against the starting signal without the token and collided with a special train approaching under clear signals. In neither case did fatalities result and these exceptional accidents served to emphasise how very high is the level of safety on single lines in Great Britain.

On July 14 fire broke out in an express near Huntingdon in a crowded coach of an articulated set. The guard had not thought the first signs of it of sufficient seriousness to call for the train to be stopped and there was some delay in pulling the communication chain, not accessible from the body of the car. The fire spread very rapidly and in the end four vehicles were destroyed. The coach walls and ceiling were covered with highly inflammable material and the floor with sponge rubber. The remaining 28 similar coaches were at once fitted with centre doors and communication chains and all inflammable cloth and floor covering was removed.

A case of over-running an inner home signal, by which a motorman and eight passengers were killed, occurred at Ford on August 5. The motorman had been stopped at the outer home but on seeing the line in front unoccupied he must have imagined all was right for him and failed to see the inner home. Unfortunately some facing points were standing locked for an occupied line, to which he found himself unexpectedly diverted. Another case of over-running took place at Newcastle Central on August 17 when an electric train left against a platform starting signal and met an incoming one with fatal results to its motorman and two passengers. This was the seventh case in three years of an inquiry into an accident caused in this manner.

A serious derailment, resulting in 15 deaths, took place at Weedon on September 21. The changing round of the locomotive bogie axles had resulted in the leading axleboxes being tight in the horn guides and risk of a wheel crossing the rail had been present from the beginning of the journey. The leading wheels came off on flat-bottom track and the train ran through a tunnel without the enginemen noticing anything was wrong, but when bull-head track was reached serious damage was set up and derailment followed, with very destructive results. It was considered there had been insufficient supervision and control of work having an important bearing on safety. The practice of changing round bogie axles to even out tyre wear has now been discontinued.

On November 14 a light engine got out of control after leaving Cowlairs and ran into an empty coach train shunting at Queen Street, Glasgow. The vacuum brake failed entirely and it was found that a hose pipe between engine and tender was worn through by rubbing on a lug and a spring was missing from a valve so that the vacuum chamber system was rendered useless. The necessary steps were at once taken to prevent a recurrence and it was considered advisable also to improve fault reporting methods.

At Polesworth, what might have been a much more serious derailment, but for the presence of a platform, occurred on November 19. A train was being diverted and the signals were against it, but it took the crossover at speed and the engine turned over at the end of the station. Fortunately only two persons were injured. It was considered that, despite his assertions, the driver had not seen the colour-light distant, and the value of automatic train control was stressed in the report. A most unusual accident took place at Culter on December 3. A signal installer had misunderstood a plan and connected some points up incorrectly, and another man had removed detector blades irregularly. The work had not been checked, which resulted in a starting signal being lowered with points standing for the siding. A passenger train collided with the buffers. Steps were taken to improve the organisation of the installation and testing of new signalling work and to prevent a recurrence of such serious mistakes. At Piershill Junction, on December 21, the crew of a light engine failed to carry out Rule 55 and a collision followed. Track-circuiting has now been installed.

In addition to these cases several others were the subject of correspondence with the railway authorities, in a number of which failure to carry out Rule 55 was prominent. There were also some cases of mistakes in block working, one of an electric train driver misreading colour-light signals and passing others at danger, and one of a semaphore signal remaining "off" unnoticed by the signalman. A case of a driver running by signals in a diabetic coma again emphasised the importance of recommendations made regarding medical examinations, while a derailment at Easington resulted in the programme of improvement of pony truck control on certain engines being accelerated. Some cases of electrical fusing and severe arcing also called for attention.

As regards certain classes of failures of equipment, tabulated in the report, a decline was recorded, due principally to a considerable reduction in coupling failures on both passenger and goods trains. Two failures of carriage axles on London Transport lines took place, for the first time in four years. In one case the axle had been passed as flawless by supersonic test, but the technique is new and the operator was probably deceived by an unusual change in the section of the axle accommodating a pulley. A coupling rod failure at 60 to 70 m.p.h., fortunately without serious results, led to a locomotive class being withdrawn during re-design of wheel fixing. There were more broken rails than in 1950 and failures of track and structures, brought about by unusual floods and slips. A very unusual failure of an old station roof at Sheffield Victoria, fortunately without casualties, led to precautions being taken to ensure the safety of other similar structures. The chief liability to failure of couplings lay in weakness of the drawgear, but the proportion of failures from this cause in goods trains was again lower, 41·4 per cent. against 44·6 in 1950, but for passenger trains the figure rose slightly from 48 to 49·1 per cent. There were, however, only 42 accidents arising therefrom, involving collisions, derailments and/or personal injury, but, unusually, passenger trains were concerned in two instances. It is to be noted that "the question of continuous brakes for freight trains generally is now under examination."

Level Crossings

There was an improvement in the total number of accidents and casualties at level crossings during 1951. The risk at properly guarded and equipped public level crossings is very small. The total of 208 included 189 "train"

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accidents, 7 with fatal results, involving collision with gates or vehicles. It was not thought necessary, however, to hold any formal inquiry. Total casualties were 72 (22 killed and 50 injured) compared with 35 killed and 54 injured in 1950; of the killed, 14 were pedestrians and 8 occupants of road vehicles. The report mentions a number of cases presenting points of interest, such as heavy farm vehicles being struck or gates run into by road drivers. Carelessness on the part of users continues to be the predominating cause of mishap at occupation crossings. The figures for them, says the report, are much the same as in previous years. "Safety on road and rail at these crossings," we read, "still depends primarily on the care and vigilance of road users and, as has been stated in previous Annual Reports, the problem which they present is difficult and complex. It is now under examination from all its aspects following the receipt of the British Transport Commission's memorandum on the subject."

Movement Accidents

Accidents to passengers in "movement" as distinct from "train," accidents are almost invariably due to want of care on their own part. "The folly of attempting to board and leave trains in motion," says Colonel Wilson, "is again emphasised; the boarding of trains after they have started is a particularly dangerous practice and the risk of a fall between the footboard and the platform, which may well result in grave injury, is accentuated by the rapid acceleration of electric rolling stock." The features of these accidents to passengers vary little from year to year. It is those affecting railway servants that offer greater interest. The Railway Employment (Prevention of Accidents) Act of 1900 empowers the Minister of Transport to make Rules "with the object of reducing or removing the dangers and risks incidental to railway service." Some were made in 1902 and 1911 and others can be "provided the railways are first given an opportunity to remove the danger on the own initiative." With 154 fatalities and 656 cases of serious injury a decline of nearly 14 per cent. on 1950 was recorded, although slight injuries rose 5 per cent.

The encouragement brought by a progressive reduction is tempered by an increase in the cases where men were working on the line and were aware of the approach of a train but acted incorrectly, or were unaware of its approach through want of vigilance. Rule 234 (*a*) continues to be disregarded, often no doubt from preoccupation or forgetfulness. "A better example by senior men is still required," says the report, "as no less than two inspectors, eight gangers and two sub-gangers were among those who met with accidents through failure to take the elementary precaution required by this Rule."

A serious fatal accident occurred at Arundel Junction, when a ganger and four men were working with an extended view along the line. They were relying on hearing a train but failed because of a strong wind. The motorman failed to brake at once when he saw they did not respond to his whistling. "It seems desirable," says Colonel Wilson, "that the practice adopted in some districts

CASUALTIES IN TRAIN AND MOVEMENT ACCIDENTS

—	Total	Killed				Injured				All casualties per million train miles	
		Total	Passengers	Railway servants	Other persons	Total	Passengers	Railway servants	Other persons	Killed	Injured
1915–1919 ...	6,122	616	174	341	101	5,506	1,731	3,600	175	1·8	16·5
1920–1924 ...	6,638	407	92	248	67	6,231	2,577	3,518	136	1·1	17·0
1925–1929 ...	7,526	368	91	210	67	7,158	3,733	3,267	158	0·9	18·0
1930–1934 ...	7,440	308	74	183	51	7,132	4,394	2,592	146	0·7	17·0
1935–1939 ...	8,376	338	86	198	54	8,038	5,342	2,576	120	0·8	18·0
1940–1945 ...	1,222 (1)	477	141	254	82	745 (1)	256 (1)	455 (1)	34.(1)	1·2	1·9 (1)
1946–1950 ...	8,878	347	91	204	52	8,531	5,647	2,763	121	0·9	21·2
1946 ...	9,529	413	120	236	57	9,116	5,691	3,281	144	1·0	22·6
1947 ...	9,203	409	148	218	43	8,794	5,871	2,785	138	1·1	22·9
1948 ...	8,683	340	87	191	62	8,343	5,554	2,678	111	0·9	20·9
1949 ...	8,651	285	44	188	53	8,366	5,640	2,625	101	0·7	20·2
1950 ...	8,329	290	60	187	43	8,039	5,483	2,466	110	0·7	19·5
1951 ...	8,176	283	97	158	28	7,893	5,328	2,482	83	0·7	19·2

(1) Serious injuries only

ACCIDENTS, EMPLOYMENT, AND OPERATING STATISTICS

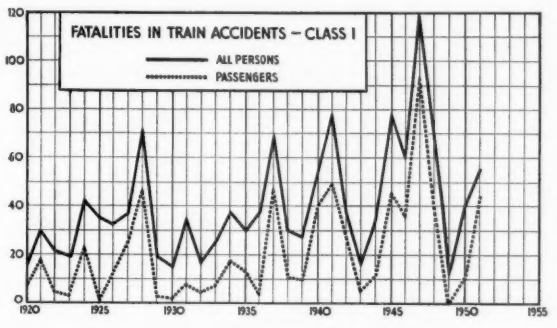
—	Class I		Railway servants (March)	Passenger journeys originating (incl. season tickets)			Freight-tonnage originating (excl. free hauled)	Ton-miles (incl. free hauled)	Miles operated				Passenger-miles (estimated)	
									Main line railways			London Transport: Train		
	Train accidents	Failures of rolling stock or permanent way		Total	Main line railways	London Transport			Train	Shunting	Other		Main-line railways	London Transport
	Number		Thousands	Millions										
1920–1924 ...	1,009	11,153	699 (2)	1,848	—	—	303	17,457	369	121	28	—	—	—
1925–1929 ...	941	9,141	679	1,661	—	—	298	17,562	401	123	29	—	—	—
1930–1934 ...	796	5,772	602	1,612	—	—	270	16,060	416	113	27	—	—	—
1935–1939 (1) ...	745	4,149	592	1,733(3)	1,255(3)	478 (3)	281	17,230(3)	412	115	29	32	18,993(4)	2,297(4)
1940–1945 (1) ...	387	160	604	1,661	1,210	451	288	23,844(5)	356	124	37	26 (6)	33,191(7)	2,608(7)
1946	1,237	5,162	652	1,855	1,266	589	262	20,639	373	116	36	30	29,231	3,029
1947	1,388	4,679	660	1,714	1,140	574	257	20,190	355	113	35	31	23,015	3,095
1948	1,293	4,398	703	1,646	996	650	276	21,502	366	112	41	34	25,093	
1949	1,176	4,062	648 (8)	1,634	993	641	280	22,010	381	109	41	34	24,958	
1950	1,156	3,609	628	1,613	982	631	281	22,135	384	105	40	34	23,898	
1951	1,280	3,436	622	1,624	1,001	623	285	22,902	376	104	40	35	24,302	

(1) Having regard to the altered basis under the Modification Order, fewer accidents were reportable and only serious damage is included as from September 1, 1939, to December 31, 1945. The comparison is unchanged as regards traffic, movement and staff employed
(2) Four years, 1921–1924
(3) Four years, 1935–1938
(4) For year ended August, 1939, only
(5) Estimate for main lines—1942–1945
(6) Loaded only
(7) Three years, 1943–1945
(8) Railways and London Transport Executive's Staff only

for men working on the track to give some visual acknowledgment of train whistle warnings should be made universal so that drivers would know at once how to act." He points out that 5 gangers and sub-gangers were killed and 5 injured during routine track examination, only exceptionally requiring a lookout man, which "also draws attention to the failure of senior men to set a good example."

Only 6 casualties resulted from the failure of lookout men, two of whom were killed from moving into danger after warning others. There were considerably fewer casualties, 11 only, than in recent years due to inadequate protection, but "in at least 6 instances lookout men were available but not appointed owing to errors of judgment. A case where noise interfered with hearing the warning causes Colonel Wilson to remark that "noise from mechanical track equipment, the use of which is growing, is also a source of danger, as it may drown the sound of a lookout man's whistle and it may be necessary to have another man close by to warn the operator by touch." He stresses the fact that the rule covering the appointing of lookout men should be interpreted liberally, and that taking a man to act as such does not necessarily reduce a gang's output as men can work better when not obliged to consider their own safety; when a lookout is thought unnecessary, however, men should keep together, on one line as far as possible.

The simple rules drawn up to warn against risks should be welcomed as such and respected accordingly. In the



Comparison of fatalities from 1920–1951

case of accidents to staff walking or standing on the line, failure to exercise proper care frequently plays a great part; accidents often occur, too, from men taking an unauthorised route to and from work when a safe one could have been followed. In other departments of the railway, as for example in shunting, this factor also applies.

The non-movement accidents involve a large number of headings, but it is worth noting that no fatality occurred in 1951 caused by permanent way men coming in contact with electrical track equipment. Figures for live rail casualties for each of the last three years have been well below the 5-year averages, and as total live rail mileage has remained practically constant since 1939, this is probably due partly to better education in the use of safety appliances.

In reviewing the year in conclusion, Colonel Wilson refers to certain points of special interest raised by its events, such as the replacement of old 2-position block apparatus by modern equipment and the need of thoroughly good training of signalmen and of satisfactory signal apparatus maintenance. We think too that there is some room for more helpful supervision of signalmen by inspectors and stationmasters. Of the 64 accidents caused by disobedience to signals, 12 probably would have been prevented by warning A.T.C., the extension of which has been accepted in principle by the British Transport Commission. "It is to be hoped," we read, "that the experiments which have been going on for some time with apparatus to suit modern requirements will soon be brought to a satisfactory conclusion."

It is pointed out that generally locomotives and rolling stock were maintained in satisfactory condition, but the rise in reported accidents emphasises "the need for conscientious examination of vital parts and timely repair of defects which may sometimes appear to be small in themselves but may nevertheless affect the safety of the running and of the men . . ." The general effect of better cleaning of engines is dwelt upon. There is little doubt, in our opinion, that the sight of clean engines and stock puts heart into the railwayman, giving him a feeling of pride in the service, and exercises an appreciable influence on the way in which each performs his own particular task. Shortage of steel still seriously interferes with the relaying programme, but no general return to the pre-war speed level is possible as yet, although on some sections restrictions have been taken off. There were at the close of the year 2,231 miles of flat-bottom track. The thorough preventive measures taken resulted in no case of track distortion by heat being recorded. The Huntingdon train fire once more drew attention to the absolute necessity of reducing risk of an outbreak to the minimum and providing the fullest possible means of escape and of dealing with an outbreak should one still unfortunately occur. It is very satisfactory to see that the whole of the recommendations made after the Beattock fire in 1950 have now been accepted by the Railway Executive.

"Inability to provide the desired efficiency of service to the travelling and trading public," says Colonel Wilson, "must in the end have a depressing effect on the staff of all grades and may well have some reaction on safety . . . With the success, however, of the special measures taken to ensure the free flow of traffic in the winter of 1951-52, which were helped by good weather, and some easement of the staff position, the railways are now in better heart and punctuality in some instances has achieved new records." He expresses confidence in the endeavours of all concerned to overcome present difficulties and the hope that operational safety will benefit in turn. In spite of every adverse factor, however, as he stresses, the risk of travelling by rail continues to be very slight. There was only one passenger fatality per 38 million passenger journeys in 1951.

Serving the Public

FULL statistics of summer passenger traffic are not yet available, but some figures which have been given in the current isssue of *British Railways Magazine* give a broad indication of the work that was done by the railways. For example, on the twelve Saturdays during the main holiday period (June 21 to September 6) they ran 6,519 long-distance passenger trains from London termini and carried 2,560,888 passengers in them. During the four days of August Bank Holiday weekend 86,728 trains were run, including 4,092 main-line and local services specially for holiday traffic. Notwithstanding currency restrictions, during June, July and August 1,334,125 passengers were carried to and from the Continent. During the same period 271,192 travelled to and from the Channel Isles.

The writer in *British Railways Magazine* who gives these statistics usually signs his article "The Man on the Line," but on this occasion he has changed his pen-name to "The Public's Champion." He has done this because, after recounting the foregoing figures to present the credit side of what the railways have done to satisfy their customers during the summer, he points out some of the things that might have been done better. At one important station a rough temporary barrier erected to control Saturday queues was left in position on days when it was not required, and as it cut into the approach to the concourse it occasioned inconvenience to passengers which could easily have been avoided. At another busy station there were long queues at the enquiry office at lunchtime when only one girl was on counter duty. As "The Public's Champion" points out, many business people can call at railway booking and enquiry offices only at lunchtime and, although with staff shortages it is sometimes a real problem to make sure that service is available, he empha-

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sises the need to be on duty when required by the public. This approach to the staff to promote a greater service to the public is a step that should be welcomed and should do much to foster a better and more co-operative spirit between railway staff and the public. In general, good service is normal on British Railways, but there can be no doubt that, perhaps because of this, any shortcomings remain in the public memory and often have reactions out of proportion to the inconvenience caused. British Railways depend very largely for their success on the goodwill of traders and public. With increasing competition from other forms of transport, notably aviation where the problems of mass handling of passengers are not nearly so acute, and where great pains are taken to give individual service to the traveller, the need for taking all possible steps to promote willing, courteous and efficient service is greater now than at any time in the past.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

"Statistics Run Wild"

October 21

SIR,—Having read the justification of the Chief Public Relations & Publicity Officer of the British Transport Commission for the census of railway traffic now being undertaken, which appeared in the correspondence columns of your October 17 issue, I am rather surprised at the mildness of your editorial footnote, to which I heartily subscribe.

The production of a mass of statistics of this order may give the parties concerned a feeling of gratification, and of justification for their existence. One thing is apparent; and that is they are out of touch with the rank and file of the employees of British Railways, who will have to complete the forms. May I remind the authors that forms filled in to the accompaniment of grumbles and, on occasion, expressions not used in polite society, seldom carry more than the merest approximation to the truth. If these authors had considered the not always altruistic personalities of the individuals who would have to complete these forms, no doubt a much improved arrangement would have been forthcoming, and at much less cost and ill-feeling.

Yours faithfully,

D. J. WANDLE

27, Nether Edge Road, Sheffield 7

Operating in the Scottish Region

October 21

SIR,—I have read with interest the article on the Scottish Region in your October 10 issue, although I am rather at a loss to appreciate the value of a comparison between two Regions whose points of difference are more important than their points of similarity.

In comparing the Scottish and North Eastern Regions it has to be borne in mind that the area of Scotland is three times that of the North Eastern Region, but that the population is 25 per cent less, and, what is more, that population is concentrated in the central belt. Your correspondent refers to the high proportion of single line mileage in Scotland but does not refer to the fact that long stretches of this mileage lie north and west of Perth in areas which contribute little in traffic receipts. There is the further consideration that, for much the greater part, the North Eastern line is almost level, whereas in Scotland the gradients are numerous and severe and there is, on account of the hilly nature of the country, heavy curvature on many lines.

The complete re-orientation of the landsale coal trade due to the decline in shipments, and particularly to the increased demands of the manufacturing West of Scotland for coal produced in the East, has created a special problem involving expensive working because of the total inadequacy of the existing yards. Your correspondent suggests that the fall in originating tonnage in Scotland is due to a leakage of valuable traffic to road or water, but the main explanation is the difficulties of the Scottish steel producers over raw materials and particularly imported scrap, on which the Scottish steel producers are largely dependent—a point which was brought out specially in *The Times Industrial Supplement* recently. With such a heavy fall in raw materials it was to be expected that there would be a heavy fall in the tonnage of the finished products.

It is entirely erroneous—as an examination of the working timetable would show—to attribute the increased speed of freight trains to the lighter occupation of the lines, and perhaps your correspondent would care to adopt, as an alternative, the explanation that there are now in key operating positions in Scotland a number of officers who developed in the North Eastern Region what he calls "an aptitude for using traffic statistics."

Possibly your correspondent does not have access to information with regard to the extent to which traffic from Scotland to the Eastern Region is marshalled in Scotland into block train loads, thus providing—at the expense of Scotland—optimum operating conditions for our friends in the North Eastern Region.

Yours faithfully,

"CALEDONIA"

Protection for Engine Drivers

October 20

SIR,—Apparently the problem of keeping clean the cab spectacles on steam locomotives has never been solved. They are therefore practically useless to the driver, who spends most of the time with his head outside, often suffering from eyestrain and in constant danger of damage to his eyes from grit, cinders and insects.

In America the driver is protected by a narrow vertical strip of glass outside the cab. In France he wears goggles. Either of these protections is simple and effective—why not use one of them in Britain?

Yours faithfully,

G. RICHARD PARKES

Montcroft, School Lane, Formby

The Costing of Transport

October 25

SIR,—I have read with great pleasure the following words from page 453 of your October 24 issue: "Mr. Tait showed that . . . the railway had a distinct advantage in cost for the trunk haul of (sundries) traffic provided transits were between main concentration points where good loadings could be obtained, and expensive pick-up train working and transhipment were avoided."

My theme for nearly thirty years. I claim that the advantage is measured by the difference between the railways' best figure of 1,200 net ton-miles per train engine-hour and the 15,000 which is possible by cutting out the pick-up, slow-moving, poorly-loaded feeder trains, and the marshalling and the transhipment. That is not primarily a question of rail *versus* road, but of the railways using each instrument of transport in its proper sphere, within the *railway* economy, and with their own vehicles, or vehicles under their control.

Mr. Tait makes a great advance on railway thinking, also, when he emphasises the importance of time. Mileage has been the railway fetish, especially in passenger train estimating. Pride was taken in miles saved, even when hours were increased and an inferior service given.

Years ago, I analysed the booked speeds of freight trains

in a representative group of 172 trains; 101 were booked at less than 15 m.p.h. Trunk trains touched round about 40 m.p.h. The average was 13. Is there in existence a complete estimated costing of all traffic carried by the railways on the basis of operating through concentration centres fed and tapped by road ? And may we be allowed to see it ?

It appears likely that the railways will be freed from the obligations which have prevented them from attaining efficiency. Likewise, their competitors will be free also. If the railways continue their present methods of operation, they will simply not survive, and it is unthinkable that they should be allowed to die out. On the other hand, a drastic reform of their operating methods (to which Mr. Tait points the way) will carry them to levels of prosperity and public service not hitherto reached, and freedom with enterprise will be justified for their children.

Yours faithfully,

FREDERICK SMITH

65, Hallowell Road, Northwood, Middlesex

Electrification Systems for New Zealand

September 26

SIR,—Mr. Albert G. Nymeyer in his letter in your June 13 issue states *inter alia*: "Also it is only logical that Swedish engineers should propose a system which, I understand, gives excellent performance in Sweden; I have been astonished that alternating current of special frequency is being recommended for New Zealand." And later: "It seems, however, that in the light of recent developments of 50 cycle a.c. schemes the special frequency as used in Sweden is not the only alternating current system to be considered."

The truth is, that as far back as 1948 the following four schemes were investigated by the writer and consolidated in his Report No. 5 to the Electrical Engineer, New Zealand Government Railways, entitled "Fundamental Investigation of the Paekakariki-Auckland Electrification":—

(*a*) A 25-kV. single-phase a.c. 50 cycles traction system using only eight transformer substations incorporated into the nearest State Hydro-Electric Department substations and feeding the 25-kV. 50-cycle single-phase a.c. trolley lines by short duplicate 25-kV. single-phase feeders (totalling 15 miles).

(*b*) A 20-kV. 16⅔ cycles single-phase a.c. traction system using only eight railway-owned synchronous 3-phase/single-phase motor-alternator converter substations located alongside the track, to be fed through short (total 15 miles) 3-phase duplicate H.V. feeder lines.

(*c*) A 3,000 d.c. traction system with 26 mercury-arc rectifier substations fed from 12 S.H.D. substations, requiring 250 route-miles of new high-voltage 3-phase feeder lines.

(*d*) An extension of the existing 1,500 d.c. traction system requiring 67 mercury-arc rectifier substations fed from 12 S.H.D. substations, necessitating the building of 426 route-miles of H.V. 3-phase feeder lines.

The comparative costs of the four schemes including fixed traction equipment, 32 double-unit 3,000 h.p. locomotives (continuous rating at the rail) and the necessary alterations to signalling and communications equipment worked out as follows:—

Scheme	(*a*)	(*b*)	(*c*)	(*d*)
Comparative cost ...	Per cent 100	Per cent 106·5	Per cent 161	Per cent 223

The choice and the unanimous recommendation of the 16⅔ cycles single-phase system was made—with the number of substations reduced to seven—by the Technical Mission (appointed about 1949 by the General Manager) in July, 1949, as a result of investigations whilst overseas; and was incorporated by the General Manager in his Report submitted to the New Zealand Government in the next year. The General Manager's proposals and recommendations were then reinvestigated in New Zealand during 1950 by (1) the Ministry of Works; (2) the Treasury; and (3) were checked by the Swedish engineers appointed by the Government as technical advisers about that time only.

All three authorities have approved the choice of the system, and it should be mentioned also that the Swedish engineers, based on their experience on the Swedish State Railways, recommended adoption of the international standard voltage of 15 kV., 16⅔ cycles, instead of the originally-proposed 20 kV.; also they were able to suggest some other simplifications and improvements.

Some of the very sound reasons for adoption of the 16⅔ cycle system for the North Island Main Trunk line in preference to the 50 cycles system were as shown below:—

1. The wealth of experience and the excellent results with that system in Austria, Germany, Norway, Sweden and Switzerland on nearly 9,000 route-miles, as against the comparatively limited experience with the 50-cycle system in Germany and Hungary on a total of approximately 160 route-miles only.

2. The numerous tunnels having limited clearances on the North Island main trunk line, the distribution of State Hydro-Electric Department 110/11-kV. and 110/22-kV. substations along the railway line; and the fact that while 15 kV. trolley voltage is adequate with the 16⅔ cycles system, more than 20 kV. would be required for the same number and spacing of the traction substations with the 50-cycle system.

3. The advantages of the symmetrical 3-phase loading on the S.H.D. network with scheme (*b*) as opposed to the unbalanced single-phase loading with scheme (*a*).

4. The possibility of paralleling the electrical system both on the 3-phase and on the single-phase side with the 16⅔-cycles system.

5. Higher efficiency of the 16⅔ cycles rolling stock, unity power factor on the 3-phase side with the synchronous motor-alternator substations with scheme (*b*) against the approximately 0·85 P.F. with the 50-cycle substations, resulting in considerable saving in energy costs in view of the current New Zealand kvAh. tariff, etc.

In addition, the operating costs, technical and economic advantages and disadvantages of all systems have been very thoroughly investigated, and the system that proved the most advantageous in all respects for New Zealand conditions has been selected.

Yours faithfully,

STEPHEN A. VINCZE

73, Karepa Street, Wellington, New Zealand

Publicising Nationalised Industries

October 24

SIR,—I feel I cannot let Colonel Peto's letter of September 28, which was published in your October 24 issue, go unchallenged, although such a farrago of exaggeration and distortion can only spring from ignorance and prejudice.

It is all the more surprising that it should appear over the signature of this particular writer, who knew, and was known by, many railwaymen as the result of associations during the last war. One hopes that what he is now saying is not based on these associations !

I do suggest, in all sincerity, that Colonel Peto is doing both railwaymen and the community a great disservice by such a display of immoderation.

Might I reply, too, to his point about the *British Railways Magazine ?* This is primarily produced—as Colonel Peto must well know—for railway employees, and I suggest he might well leave it to editors, management, and staff to decide the policy it should follow.

Yours faithfully,

B. X. JESSOP

25, St. Oswald's Road, Fulford, York

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THE SCRAP HEAP

Safe Delivery

Thieves who broke into Kensal Green Station, London Midland Region, early on a Sunday morning used a platform truck to wheel away a safe containing £81, the day's takings. The truck was found abandoned in a street nearby.

High Paddington

A scheme for roofing over 18 acres of goods yards adjoining Paddington Station is suggested in a recently published pamphlet by two London architects. On the concrete platform built astride the tracks, they would build a town for 8,000 people, housed in blocks of buildings rising to a height of 400 ft. This town of "High Paddington," as they suggest calling it, would be reached from street level by two circular ramps, and the supporting platform would be deep enough to contain a road goods depot and car parks in its thickness.

Age on the Footplate

When I entered train-service 46 years ago the average age of enginemen pulling fast passenger trains was about 60. (I am talking now about the United States.) In the 1920s it was about 62. In the early 1930s about 65. With the pension plans coming in in the late 1930s, the age has steadily gone down. I would surmise that now it is about 53. My observations from working with enginemen and studying accident reports causes me to believe that enginemen are at their best for passenger service from 55 to 60. Fifty to 55 is all right, too. But on a fast night passenger run I would much prefer a man from 60 to 70 to one from 30 to 45. . . .

In my close contact with elderly enginemen, as I have ridden thousands of miles through the night in clear weather and fog in steam engines, I have observed many of the older men develop a sort of sixth sense that warns them when they are "" riding into peril." Men in the thirties do not develop this. —*From a letter to "The Manchester Guardian" by Mr. Horace Walmsley, of Houston, Texas, a retired conductor of the Southern Pacific Railroad.*

Retort Justified

In my travels I have found among the dining-car attendants of British Railways some of the most courtly and efficient of public servants. To one of the best of them last week a lady demanded with unbecoming and needless asperity the removal of a slight stain left on the table by a preceding customer. The reply delighted me. "At once, madam. And if madam would be so kind as to take her feet off the other seat. . . ."—*"Atticus" in "The Sunday Times."*

Performing Elephant

"Jumbo," a six-year-old elephant weighing two and a half tons, restive after a rail journey from York in a horse box, escaped in a siding at Lime Street Station, Liverpool. For an hour it roamed about the 200 yards' long carriageway. When the London express drew in the 400 passengers hastily cleared the ticket barriers without mishap. Then a taxi driver got a bag of buns from the station buffet and lured the elephant back into the horse box as it was trying to remove the lamp at the head of the express. An elephant keeper took it away in a lorry, and it later performed at the Pavilion Theatre in a "disappearing" act.—*From "The Daily Telegraph."*

Unusual Excursion Terminal

One of the train diversion measures undertaken during the signalling changeover at Euston was the routing of Sunday long-distance excursions from Broad Street. The trains concerned called at Camden Road in both directions, joining the main line at Primrose Hill in the same way as the normal steam suburban services between Watford and the outer suburbs. We reproduce the cover of one of the L.M.R. excursion handbills in which these arrangements were announced.

PROGRAMME OF

EXCURSIONS

FROM

BROAD STREET

AND

CAMDEN ROAD

FOR

SUNDAYS DURING OCTOBER 1952

SPECIAL NOTICE

Owing to Engineering Work in connection with EUSTON STATION IMPROVEMENTS the usual Sunday Excursions from London Euston will (with certain exceptions) start from and terminate at BROAD STREET, during the month of OCTOBER 1952, calling at CAMDEN ROAD on Outward and Return journeys.

Any inconvenience and delay caused to passengers owing to this work is regretted.

For TRAIN SERVICES see page TWO.

FARES and CONDITIONS OF ISSUE see page THREE.

Tickets can be obtained at Stations, Offices and Accredited Rail Ticket Agencies, also certain Suburban Stations—see page THREE.

The tickets are valid on the days for which issued and by the services specified.

BRITISH RAILWAYS

Cover of L.M.R. London excursion programme for October

Railway Campaign for Voters

An Illinois Central campaign to encourage intelligent voting in the U.S.A. presidential election has been progressively gathering steam throughout the company's 14-State territory. Voting guides and booklets on the subject of voting have been distributed to Illinois Central employees. Company bulletin boards bristle with posters with the theme "Let's All Register and Vote." Posters and car cards have been placed in trains and stations. Bills in Illinois Central dining cars carry a message emphasising the importance of every vote. When the campaign was launched before the primary election last April, some 10,000 employees at Chicago wore tags reading "I Will Vote Tomorrow ! Will You ?"

Parcels for Harrow Accident Victims

Packing parcels of comforts for travellers injured in the accident at Harrow & Wealdstone on October 8; over 150 parcels were sent to members of the public and railway staff

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Centenary Exhibition

To commemorate the centenary of Indian railways, which falls on April 16 next year, the Ministry of Railways is organising an Indian Railways Exhibition in New Delhi from February 28 to April 17, 1953. The exhibition will be held near the Purana Qila, on the Delhi-Mathura road. It has been planned on an international basis; foreign manufacturers, railways and government organisations will participate, with Indian manufacturers, chambers of commerce, and leading firms. A number of Ministries of the Government of India and State Governments will also take part.

The main purpose of the exhibition is to portray a century of progress on the Indian railways and the vital rôle played by them in the development of the country's agriculture, trade, and industry. Some of the features of the exhibition will be: a display of rolling stock in the early years of the railways and the latest stock in use, new third class and air-conditioned coaches; portraits of railway pioneers and planners as well as railway despatches, reports, and pictures of historical value; and a large relief map showing the expansion of the Indian railways during the century. The exhibition will include an open-air cinema, amusements and restaurants.

UNITED STATES

Singling a Southern Main Line

The installation of centralised traffic control has enabled the Southern Railway to convert from double to single track 48 miles of the main line of its subsidiary, the Alabama Great Southern, between Birmingham, Alabama, and Meridian, Mississippi, used by train services from both Washington *via* Atlanta and from Cincinnati *via* Chattanooga to New Orleans. A total of 137 miles of single track, including signal and switch movements, is controlled from the dispatcher's office at Birmingham, and speeds up to 80 m.p.h. by streamline trains, 70 m.p.h. by other passenger trains, and 60 m.p.h. by freight trains, are permitted. An advantage of this conversion, which with the help of c.t.c. in no way limits traffic capacity, has been the release of 48 miles of good track material for relaying in other main lines, while the material released from the latter has been used in its turn in the new classification yard at Birmingham.

Lake Michigan Car Ferries

On September 6 the second of two new car ferry-steamers for the Chesapeake & Ohio (Pere Marquette Division) services from Ludington, Michigan, to Milwaukee, Manitowoc, and Kewaunee, Wisconsin, was launched at Sturgeon Bay. These two vessels, the *Spartan* and the *Badger*, each are 410 ft. long, and have accommodation for 32 bogie wagons or 150 motorcars; the air-conditioned passenger accommodation includes 60 staterooms, a dining room seating 52, a lounge and a promenade deck. The double-bottom hulls are divided into 11 watertight compartments, and fireproof construction is used throughout. Twin-screws provide for a speed of 18 knots, which will enable the new ferries to make an additional daily crossing compared with the ferries now in use. The two vessels are costing $5,000,000 each.

The deep indentation made by Lake Michigan into the State of Michigan gives rise to considerable ferry traffic across the lake, between the peninsula of Michigan and Wisconsin points, to avoid the lengthy all-rail or all-road circuit *via* Chicago; in addition to the Chesapeake & Ohio ferry-steamers there are those of the Ann Arbor Railroad from Frankfort to various Wisconsin ports, and of the Joint Grand Trunk-Pennsylvania Railroads from Muskegar to Milwaukee.

SWITZERLAND

Further Doubling on Zürich-Chur Line

The only remaining single-line section on the main line from Zürich to Ziegelbrücke, that between Lachen and Siebnen-Wangen, is to be doubled shortly. The number of trains daily on this section rose from 64 in 1947 to 87 in 1951. The work will include widening a steel truss bridge and remodelling Langen and Siebnen-Wangen stations. Eleven of the thirteen level crossings on this section will be replaced by one overbridge and six underbridges. With the doubling of this section, the only remaining single-track sections on the Zürich-Chur main line will be between Ziegelbrücke and Murg, and between Sargans and Chur, with an aggregate length of 24 miles.

FRANCE

Handling Steel Bars

Until recently, steel bars received into the workshops and general stores of the S.N.C.F. had to be stacked by hand. Two employees at the Sotteville-Quatre-Mares workshop have devised an attachment which, fixed to the forks of a fork-lift truck, makes it possible to raise and stack the bars mechanically. Only two employees are necessary, including the driver of the fork-lift truck.

S.N.C.F. Budget Estimates

The budget estimates of the S.N.C.F for 1953 are now under discussion by the finance committee of the French National Assembly. The subsidy required to balance the railway budget is reduced from some fr. 80,000 million in 1952 to fr. 30,000 million. This reduction, however, is arrived at by the transfer to the State, under an agreement dated July 10, 1952, of certain financial charges previously borne by the S.N.C.F., amounting to fr. 60,500 million, for upkeep of permanent way, certain level crossings, and pension funds. Hence the budget estimates provide a total of fr. 90,500 million for railway expenditure. In addition, the State will make payments in 1953 of fr. 21,600 million in compensation of fare reductions imposed on the railways by the Government. In 1952 this credit amounted to fr. 16,300 million.

For the Paris Metropolitan and bus system under the control of the R.A.T.P. (Régie Autonome des Transports Parisiens) the budget provides a total of fr. 2,290 million, representing State participation in operating expenditure, slightly more than for 1952.

European Transport Council

The proposal to form a European Transport Council for the co-ordination of European transport systems was voted by the Consultative Assembly of the Council of Europe at Strasbourg on September 26. The voting was unanimous with one abstention. The proposal was put forward by Monsieur Maurice Lemaire, former Director-General of the S.N.C.F. All European Governments may be represented on the Transport Council, whether members of the Council of Europe or not. The proposal is subject to the approval of the Council of Europe Committee of Foreign Ministers, any of whom may veto it.

In advocating the proposal, Monsieur Lemaire said that establishment of the European coal and steel authority had caused his Government to consider how to improve the transport system of North Eastern France. Some of the proposals were illogical; there was talk, for instance, of electrifying the line from Thionville to Coblenz and simultaneously of canalising the Moselle, which projects were economically incompatible. This example, he said, showed the importance of an international co-ordinating body for transport.

Strasbourg Railway Centenary

In ceremonies from October 18 to 26 Strasbourg celebrated the opening of the railway from Paris 100 years ago. The centenary programme included displays of railway material, models, documents, and diagrams concerning railway history. On the first day, a train made up of a locomotive and coaches in use in 1852, with a train crew and passengers in costumes of the period, drew up in Strasbourg Station. It was a copy of the train in which Prince Louis Napoleon, then President of the French Republic, travelled to inaugurate the line on July 12, 1852. A commemorative stamp was issued by the postal authorities.

XUM

Confines of Braking—1

Factors reducing braking rates below the limit imposed by adhesion between wheel and rail

By H. R. Broadbent, B.Eng.

WITH torque braking, as distinct from track braking, the maximum force which can be produced in a direction parallel to the track is limited by the coefficient of friction between wheel and rail, *i.e.*, the adhesion. Many other factors reduce the braking of a train below the maximum, but if all these depreciating effects could be got rid of there would remain the adhesion between wheel and rail as the ultimate limit.

With torque braking, whether the torque is applied, Fig. 1, by the single force of a brake block at the wheel tread acting about the axle centre, or two forces with two brake blocks, or through a gearwheel, disc or drum, the effect is to produce, Fig. 2, a couple resulting in a force P_D parallel to the track, decelerating at a rate f the masses m of the car through the centre of mass of the wheel and axle assembly and through horn guides. An equal force P_T acts on the rails through the contact between wheel and rail with consequent reaction R_T on the wheel.

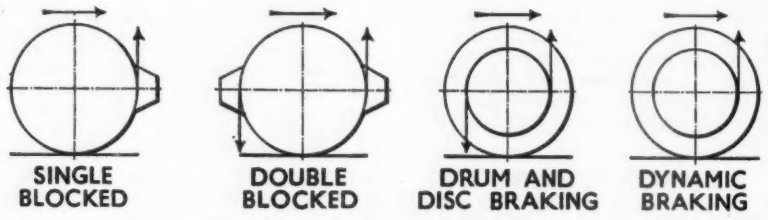
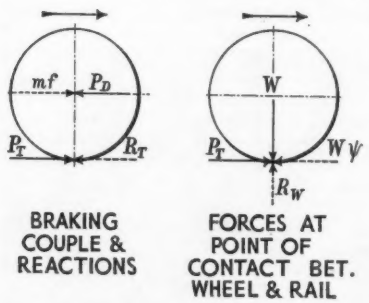


Fig. 1.—Methods of torque braking



Figs. 2 (left) and 3 (right)—Forces involved in braking and requirements for adhesion

In order that there shall be equilibrium at the point of contact between wheel and rail, *i.e.*, that there shall be no relative movement, no wheel pick-up, no skid, the force P_T must be no greater than R_T, that is no greater than $W\psi$ where W is the weight on rail and ψ is the coefficient of friction between wheel and rail, the adhesion (as shown in Fig. 3).

It is to be noted that the full torque on the wheel must allow for the deceleration of the rotating masses, but, with every axle braked, the additional torques, since they decelerate the rotating masses without recourse to reaction at the wheel tread, may be ignored in the study of adhesion, except where the axle is overbraked.

It will be seen that since $P_D = P_T$

$$mf = W\psi$$

or, where each axle is arranged to brake the masses of which the weight on rail is the measure,

$$f = g\psi$$

i.e., the maximum rate of braking is controlled by ψ, the adhesion between wheel and rail.

It is common practice in discussing braking to refer to the "braking efficiency" of a train. The figure, as a percentage, is derived from the equation—

$$\text{Braking efficiency } \% = \frac{3{\cdot}34\,(\text{m.p.h.})^2}{\text{Braking distance in feet}}$$

The equation is derived from the kinetic energy formula—

$$Ps = \tfrac{1}{2}mV^2$$

$$\text{or } \frac{P}{W} = \frac{V^2}{2gs}$$

from which it will be seen that braking efficiency is the average braking force P parallel to the track during a braking application from a speed V to standstill, in distance s, expressed as a percentage of the train weight W. It will here be noted that since—

$$\frac{P_D}{W} = \psi$$

the braking efficiency can be related to adhesion, but only when the braking is straight line from moment of application to standstill. This is never so in practice, and the braking efficiency can therefore be considered only as an average ratio, and not the adhesion value which is the limit in maximum braking. It does, however, give an indication of the degree to which even emergency braking falls short of that which would be possible if continuous full use were made during a stop of the rolling coefficient of friction between wheel and rail.

Considerations of the other factors which limit braking must always be coloured by the fact that the highest rate which can be achieved is controlled by the coefficient of friction between wheel and rail. The number of factors which, for one reason or another, force the use of a braking lower than the highest rate is considerable. Each factor is treated separately hereafter, in the order shown in the following table, an indication being given of the manner in which it affects braking:—

LIMITATIONS DUE TO VARIOUS FACTORS

(1) *Time*
- Passenger comfort
- Equipment response

(2) *Apparatus*
- Brake cylinder air pressure
- Dynamic braking apparatus
- Brake rigging efficiency

(3) *Brake Block*

(4) *Block and wheel*
- Variation of coefficient of friction (μ) of a brake block with speed
- Block μ and applied force
- Block μ and tyre temperature
- Block μ and weather
- Effect of wheel diameter with drum, disc and dynamic braking

(5) *Wheel and Rail*
- Variation in passenger loading
- Weight transfer
- Deposits on rail
- Effect of speed
- Mutual wheel/rail contact
- Gradients

(6) *Train*
- Frictional resistance
- Windage

(7) *Economic Factors*
- Range of air pressure
- Effect on wheel and tyre of high rates of work stresses
- Rate of wear of blocks and tyres
- Standardisation of parts
- Space

Time Factor

It has already been mentioned that no braking starts at the maximum rate instantaneously, nor does it usually carry on to a stop at the maximum rate. The reasons are regard for passenger comfort and the speed of equipment response.

Passenger Comfort.—In service braking the driver tends to ease his brake into the maximum rate and out of it again towards the end of a stop. The perfect brake so far as the passenger is concerned is one of which he is unaware. The actual rate of braking, with a steel tyre on steel rails, can never reach values which could worry passengers. What does affect them is the rate at which the braking changes. This is the reason for easing-in and easing-out in service braking.

Fig. 4 illustrates the point that easing-in with a service brake affects the run time hardly at all, whereas easing-out at exactly the same rate produces a major change, increasing run time by 4·16 sec. If schedule times are tight, one

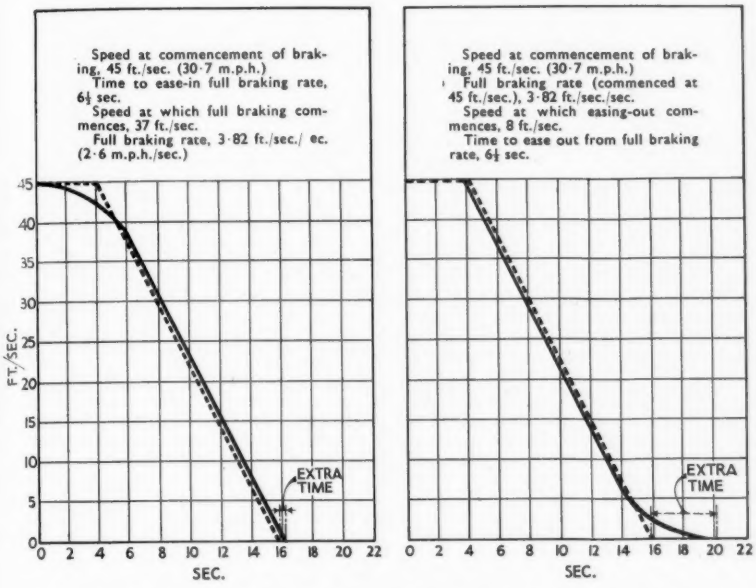

Speed at commencement of braking, 45 ft./sec. (30·7 m.p.h.)
Time to ease-in full braking rate, 6½ sec.
Speed at which full braking commences, 37 ft./sec.
Full braking rate, 3·82 ft./sec./ sec. (2·6 m.p.h./sec.)
FT./SEC.
EXTRA TIME
SEC.
Speed at commencement of braking, 45 ft./sec. (30·7 m.p.h.)
Full braking rate (commenced at 45 ft./sec.), 3·82 ft./sec./sec.
Speed at which easing-out commences, 8 ft./sec.
Time to ease out from full braking rate, 6½ sec.
EXTRA TIME
SEC.

Fig. 4—Effect of easing-in (left) and easing-out (right) on run-time

of the points on which an operator must concentrate is the end of the stops. Time can be lost unduly during this part of a run.

Equipment Response.—To a driver the perfect brake is one which reacts instantly to his demands. Fig. 5 shows a record of brake applications made with an eight-car stationary train to indicate the intervals between movement of the brake handle and the rise of air pressure in the brake cylinders. With a pneumatic brake, in which the entry of air to the cylinders is controlled by triple valves, there is an appreciable time lag even on the leading car of the train. It will be observed that the time to first movement of air in brake cylinder from first movement of brake handle increases from 2¼ at the front to 3½ sec. at the rear of the train.

To the degree that a driver is unable to make the train follow his actions in braking there will be a deficiency for which the driver will automatically allow in his braking. The amount is indefinable, but if designers can cut down the lag in equipment response, the brake becomes more lively and the driver becomes capable of braking with greater discrimination.

Apparatus

Each part of brake apparatus suffers from inaccuracies in manufacture and maintenance. Examples are given below of the variations which result.

Brake Cylinder Air Pressure.—Each wheel, if it is to be braked to the maximum, should have a torque applied to it proportional to the weight on rail. The rigging leverages and brake cylinder size are designed to this end and the term braking percentage is used to indicate the ratio of the force applied on the brake blocks on the two wheels of an axle to the weight-on-rail of that axle. It is obvious that with pneumatic braking the air pressure in the brake cylinder must be the correct value to produce the correct force, and be consistent at all times and all the way down the train. Unfortunately this is not so. When the driver makes an application, either pneumatically or electro-pneumatically, the pressures differ at the same moment in the brake cylinders.

From Fig. 5 it can be seen that with a pneumatic application there is a delay in the fall in train line (brake pipe) pressure which increases down the train, so that in the case shown the rise in pressure in the rear car began over 1 sec. later than the first; and after a period of 6 sec., while the pressure in the leading car was 44 lb. per sq. in., that in the trailing car was 30 lb. per sq. in.

If a controlled brake, working to the maximum possible use of adhesion, is in use, a means must be provided to halt the rise in pressure in the leading car before the wheels are picked-up and a skid has commenced. At this stage there are various lower air pressures in the cylinders in the other cars and the average resultant will produce a rate of braking lower than the maximum, to the degree that the effective average pressure is below the maximum for the adhesion.

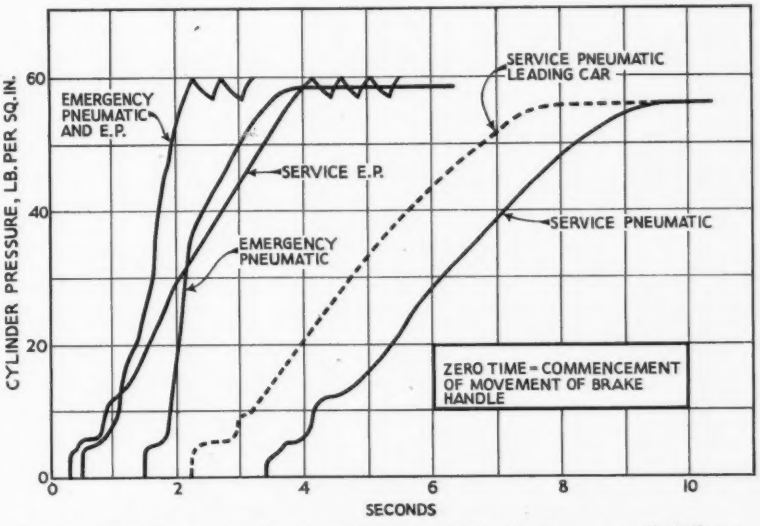


Fig. 5—Stationary tests of rise of brake cylinder air pressure with different types of brake application; eighth car of an eight-car train

(*To be continued*)

LIFTED CONTROL REDUCES BATTERY PRICES.—Mr. H. V. Schofield, Sales Director of Chloride Batteries Limited, spoke of the effect of controls when addressing press representatives at the company's annual Exide Motor Show Luncheon on October 22. The major control from which they had been suffering had gone, and with its going there had been a dramatic reduction in the price of the one commodity that was essential to their business. Who would have said, nine months ago, with lead at £185 a ton, that today they would be able to buy at £80 to £85 a ton? Did not that drive home the fact that many controls were quite unnecessary, and that once the control was taken off an article there was a reduction of price? They had, of course, followed it by a reduction in prices to their public.

RAILWAY STUDENTS' ASSOCIATION.—The annual report of the Railway Students' Association for the session 1951-52 includes details of ordinary and committee meetings, visits to transport and other industrial installations, the Paris Convention and social activities. Membership at the close of the financial year was 833, an increase of two over the previous year. Swindon Branch membership stood at 70.

XUM

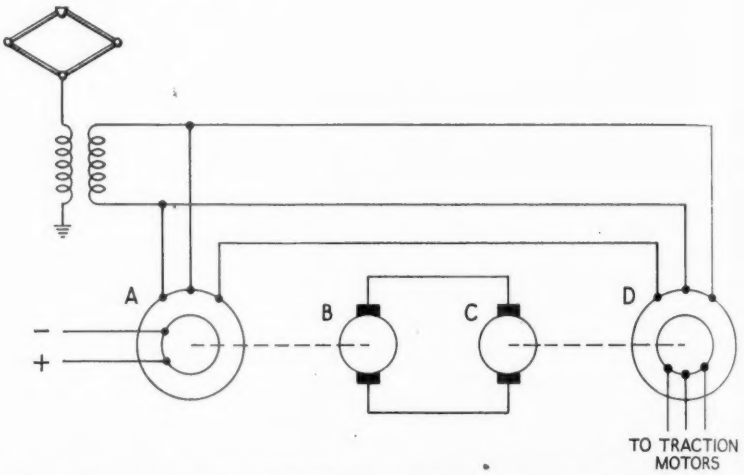
Squirrel-Cage Motors for Traction

Control by continuous variation of frequency

NEW locomotives for the forthcoming Valenciennes-Thionville single-phase, 50-cycle, electrification of the S.N.C.F. will include twenty with rotary machines supplying three-phase current at variable frequency to squirrel-cage traction motors. Conversion of a 50-cycle input to three-phase is the principle of the Kando and Ganz-Kando locomotives of the Hungarian State Railways (see our September 5 issue), but in these machines the frequency is varied by pole-changing in the traction motors, or by pole-changing in the frequency-changer combined with reversing the rotation of its field. In both systems, however, the traction motors have wound rotors to permit the use of a liquid rheostat to control the transition from one speed to the next.

The novelty of the scheme to be adopted in the Valenciennes-Thionville locomotives lies in the abandonment of pole-changing in favour of a drive continuously variable in speed for the frequency-changer, which makes a liquid rheostat unnecessary and therefore allows the use of traction motors with squirrel-cage rotors.

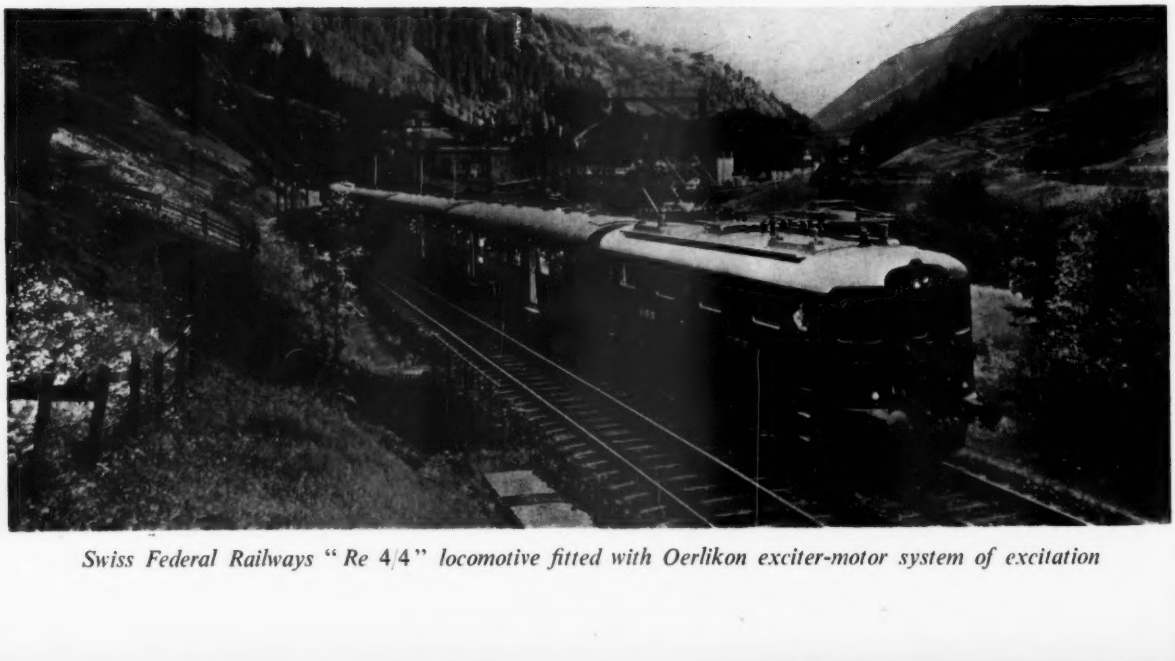
A schematic circuit for this form of control is shown in the accompanying diagram. Machine A is a synchronous phase-converter with its rotor driving the d.c. generator B. Motor C is coupled to the rotor of the frequency-converter D. By adjusting the excitation of machines B and C, which constitute a Ward-Leonard set, the rotational speed of the frequency-changer, and consequently the frequency supplied to the traction motors, can be made continuously variable by simple rheostatic control.



Arrangement for converting single-phase a.c to three-phase at variable frequency by means of a Ward-Leonard drive for the frequency-changer

It is considered that the use of squirrel-cage traction motors would reduce, if not eliminate, the need for forced ventilation, while the availability of a three-phase supply in the locomotive would enable similar motors to be used for auxiliary drives. The consequent simplification of maintenance is one of the factors to set against the four rotary machines of the conversion system. A comparison has been made between dimensions and weights of four types of traction motors of comparable torque, and shows frame diameters of 2 ft. 5½ in. for a squirrel-cage, and 2 ft. 6 in. for a wound rotor three-phase machine; 2 ft 6½ in. for a d.c. series motor; and 3 ft. 5½ in. for a single-phase, 50-cycle series motor. Corresponding weights are 1 ton 7 cwt., 1 ton 13 cwt., 2 tons 7 cwt., and 3 tons 2 cwt.

Regeneration Trial on Gotthard Line



Swiss Federal Railways "Re 4/4" locomotive fitted with Oerlikon exciter-motor system of excitation

Battery Railcars for German Federal Railways

A design affording a wide operating range

THE German Federal Railways have put into service two new accumulator railcars which in outward appearance bear no resemblance to the other accumulator railcars already operated.

They are 27 m. (88 ft. 7 in.) long with one driving and one carrying bogie, 19 m. (62 ft. 4 in.) centres. The weight, inclusive of battery, electrical equipment, heating and lighting fittings, is 55·6 *tonnes*. Seating capacity is 12 second class and 66 third class; some 50 persons can travel standing. Heating is by warm air produced by four oil heaters. The use of multiple-unit control and the Scharfenberg coupling allow two-car trains to be run.

The driving bogie has two d.c. nose-suspended motors, each of 100 kW. hourly rating and permitting a maximum speed of 90 km.p.h. (56 m.p.h.). The acceleration is 0·4 m. (1·31 ft.) per sec. One car, No. ETA 176001, has a multi-step camshaft controller. No. ETA 176002 has another form of multi-notch control. In this way a large number of short-time starting positions is obtained; there are five running positions.

The battery contains 220 cells of the lead-acid type and has a capacity of 945 a.h., with output of 398 kWh, for a five hour period. Its specific weight is 44·7 kg. (98·34 lb.)/k.Wh. This capacity gives an operating range of 250 to 300 km. (155 to 186 miles) so that, with a small intermediate charge, up to 400 km. (248 miles) can be run daily. To avoid having to provide a counterweight to the battery load (19·6 *tonnes*) the cells are arranged lengthwise in the deep U girders forming the underframe of the car.

The German Federal Railways already have more than 74 electric accumulator railcars, some of them 25, others 40 years old, which have run some 520,000 km. (323,113 miles) per month, or about 275 km. (171 miles) per vehicle-day, about the same service as that given by cars taking power from the overhead contact wire. The suitability for the service and the excellent results in running and maintenance obtained with the accumulator cars is well known.

Latest type of battery railcar for the German Federal Railways (left) and interior of driving cab (right)

BELGIAN CONGO 50-CYCLE ELECTRIFICATION.—Electric working began this month on the section from Jadotville to Tenke of the Elizabethville-Port Francqui line in the Belgian Congo, which has been electrified at 22,000 V., 50 cycles (see our June 20 issue). The line is worked by the Bas Congo-Katanga Railway, and the section now converted is 58½ miles in length. A banquet in Elizabethville in connection with the event was attended by the Belgian Minister for the Colonies.

AUCKLAND ELECTRIFICATION PROGRAMME.—A scheme of progressive development has been decided on for the Auckland suburban electrification scheme, the decision to proceed with which was reported in our October 24 issue. The Minister of Railways has announced that the following major works will be included: construction of the Morningside deviation and underground stations, with electrification between Henderson and Papakura; extension of electrification from Papakura to Frankton Junction; construction of a new marshalling yard at Westfield; re-arrangement of the Auckland yard, giving improved under-cover wagon accommodation and better facilities for working the wharves; improved freight yards with new goods sheds at Newmarket and Penrose; and reconstruction of the Frankton yard and station. The Morningside deviation will give a more direct link between Auckland Station and Kingsland on the line to the North. On leaving Kingsland Station, the new line will enter a tunnel eight chains long. It will then run through an open cut for 70 ch. in the bottom of the Newton Gully before entering the main tunnel—two miles long—near the Newton school in Monmouth Street. On leaving the tunnel the line will fork, one branch running into Auckland Station and the other making a junction with the existing main line in the opposite direction. Three stations are proposed on the main tunnel section, one of them serving the city's Civic Square. The first work on the scheme will be construction of the two bridges near Auckland Station. Initial earthworks and tunnelling will also be begun at the Kingsland end of the line. The whole deviation will be 3¼ miles long. Construction should be under way by the end of 1953. Sidings for multiple-unit trains will be provided on the open part of the line. In his statement on the work, the Minister said it was proposed to engage an overseas civil engineering consultant to advise the Government on the underground city stations and to submit for consideration complete designs, specifications and estimates of costs. A leading firm of electrification experts would also be appointed to advise in detail on the design and construction of the electrification system. This course had been decided on because of the numerous developments of recent years in the techniques of railway electrification and equipment.

XUM

New Power-Bogie Locomotives in Holland

French-built design derived from prototypes for S.N.C.F. now in service on the Netherlands Railways

EXCEPT for the series of Swiss-built 1A-B-A1 locomotives, all the electric designs now running on the Netherlands Railways are power-bogie machines. Two of these later classes have been built in France by Alsthom, one being the Bo+Bo illustrated in our September 7, 1951, issue, and the other the Co-Co of which a photograph is reproduced herewith. Many parts are interchangeable between the designs.

The new Co-Co class consists of ten locomotives, intended in particular for heavy freight haulage, duties which they share with the 25 Co-Co machines built in Holland under licence from Baldwin-Westinghouse (see our August 8 issue). Their continuous rating at 1,350 V. is 3,990/4,200 h.p. Maximum speed is 83 m.p.h.

Welding has been used throughout in the mechanical construction of the body and bogies. In many respects the design is similar to that of the French National Railways Co-Co prototypes, for example, in the suspension of the axleboxes by means of links mounted on Silentblocs, and the two vertical swing links which form the attachment between each bogie and the body instead of a conventional pivot.

The bogie longitudinals and cross-members are pressings welded together to form closed girders. Primary suspension is provided by laminated springs with equalising beams. Four bearers in each bogie control body oscillation.

The six traction motors, which are interchangeable with those in the Bo + Bo locomotives, are fully spring-borne and drive through quills and flexible transmissions of the floating ring type. Three groupings are provided by the control system, namely six motors in series, two parallel circuits of three motors in series, or three parallel circuits of two motors in series. Four weak-field steps, with a minimum of 37 per cent, can be used in the first two groupings, but in full parallel field-weakening does not go below 47 per cent, and this limitation when the motors are operating at their full voltage has made it unnecessary to provide compensation. There are 18 accelerating notches in series, 12 in series-parallel, and 10 in parallel, or 40 in all, of which 14 are running notches.

Individual electropneumatic contactors are used for the resistance switching, and cam groups for transition, which is by the shunt method. Two blowers cool the traction motors and also maintain a slightly raised air pressure in the body, the air escaping through the roof after ventilating the resistances and helping in the cooling of two motor-compressors.

The locomotives weigh 106 *tonnes*, or 111 *tonnes* with ballast. Length over buffers is 62 ft. 3 in., and height to top of roof 12 ft. 1 in. The bogie wheelbase is 15 ft. 11 in., the distance between the leading and centre axles being 7 ft. 8 in., and that between the centre and trailing axles 8 ft. 3 in.

When first delivered for service in the previous Bo + Bo locomotives, the Alsthom "TA628" motors had not been used in traffic in any other design and extensive tests of their capabilities were undertaken at the request of the Netherlands Railways. As a result it was found that hourly and continuous ratings respectively 10 h.p. and 20 h.p. higher than those guaranteed by the maker were obtainable.

One of the ten new Alsthom 4,000 h.p. Co-Co locomotives for the Netherlands Railways

Claims Prevention: A Universal Problem—2*

Need for examination of wagons; methods of instructing staff in careful handling

(By a Correspondent)

DAMAGE to consignments as a result of defective rolling stock can be eliminated if sufficient care is given to rolling stock inspection. Such damage can be divided into damage by wet (caused by leaky roofs, ventilators, doors and tarpaulins); damage due to protruding nails; and dirty wagons. The S.N.C.F. has given particular attention to protruding nails, to which a special prevention campaign was devoted in 1949.

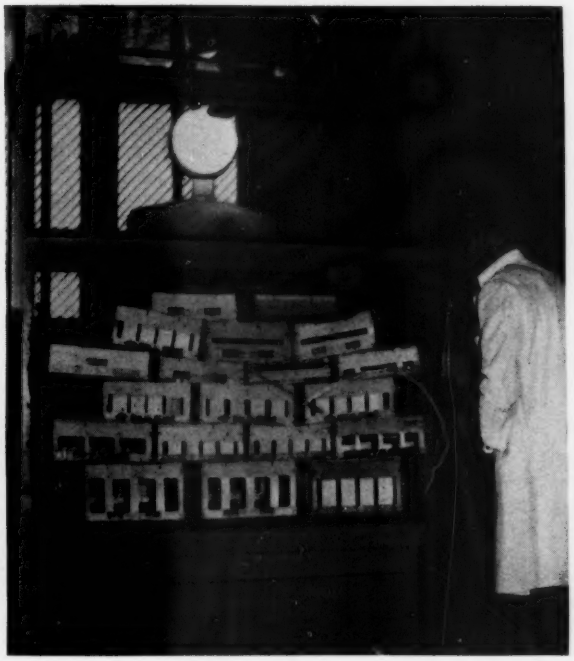
Defective Rolling Stock

In the U.S.A. soon after the 1914-18 war, some 10 per cent of total claims payments was due to defective rolling stock, since when much attention has been given to this problem, particularly to the condition of wagons when they leave repair shops, while operating staff must see that the most suitable wagon is used for any particular consignment. Emphasis is laid on thoroughly examining wagons before loading, and on remedying defects. Every effort is made to ensure that wagons are cleaned out and exposed nails removed after unloading.

Loss, on British Railways, is of more importance as a source of claims than damage, whereas in France and the United States loss is of much less importance relatively. The S.N.C.F. states that by the end of 1951 theft was almost eliminated as a serious cause of claims. Rationing and goods in short supply were still, in 1951, important features of life in Great Britain, whereas in both the U.S.A. and in France almost every commodity has been on sale in the open market, with little opportunity for a black market. In France such theft as does occur is essentially petty pilferage and not intended to obtain goods for re-sale.

Documentation of freight traffic is, on the whole, somewhat detailed in France, and whilst checking practices do not differ particularly from those in other countries, declared weights of packages are almost invariably checked. This must have a great effect on the volume of claims. Sealing and locking of wagons, the rule up to 1951, are now less frequent. The duties and responsibilities of every member of the S.N.C.F. staff have been clearly defined, which facilitates allocation of responsibility for loss, theft or damage, if the place at which it occurred can be determined. Any punishment awarded is usually accepted without demur. The early retirement age also makes railwaymen reluctant to prejudice their pension rights.

It is strongly believed in the U.S.A. that much of loss of entire packages is due to improper checking, and what has become known as "affirmative checking" has been an accepted practice on the American railways since the early 1920s. Every transhipment is carefully supervised, and a checker is made personally responsible for each operation. Packages are checked by mark and description and not merely by number. A standard plan also exists for the control of excess packages. Securing of the free end of tag labels is now almost standard practice.



Testing the resistance to pressure of light packages for fruit and vegetables at the packaging laboratory sponsored by the French National Railways

Co-ordination of the railway police forces with the traffic and operating departments has proved most helpful against theft in all countries; similarly, co-operation between railway and civil police forces is essential. The powers of railway police in different countries differ. In many cases arrests away from railway property can only be made by the civil police, but the example of one large western city in the U.S.A. which placed the railway police nominally on the roster of the city police shows how far co-ordination can be carried.

In France, railway police are now

*Part 1 appeared in our issue of October 10

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only used for detective duties, and the commercial and operating departments are entirely responsible for the prevention of loss and damage. Since this policy was adopted, with a resultant reduction in the police force, claims for loss have decreased steadily. The S.N.C.F. police are entitled to an arrest bonus varying with the importance of the case. The S.N.C.F. claims that the efficiency of the railway police is largely due to the fact that the members of this force are recruited from amongst railway staff, that they are well trained in their specialised duties, and that they do not wear uniform.

In Great Britain, security schemes have been adopted to protect vulnerable traffics. They provide for the special collection and delivery of such traffic, its segregation at stations, locking and sealing of railway vehicles, and re-routing of the traffic to avoid congested areas. Similar schemes are being adopted in other countries.

Staff Instruction

It is the practice in France, Great Britain and the U.S.A. to hold meetings with representatives of the staff when claims prevention is discussed, and staff suggestion schemes exist on the British and French National Railways and on many railways in the U.S.A. In Great Britain articles appear in the railway trade union journals; illustrated posters are exhibited and information is circulated for the use of all staff connected with claims prevention.

Posters issued by the S.N.C.F. depict the treatment to be accorded to "Monsieur Colis," as the accompanying

Agents de manutention
Monsieur COLIS vous parle
ne me BRUTALISEZ pas
on me chargeant
ne me lancez pas dans les wagons
on me déchargeant
ne me jetez pas par terre
n'oubliez pas
que les brutalités envers les colis causent chaque année d'énormes pertes à la SNCF
NE ME TRAITEZ PAS
COMME UN Simple COLIS
JE SUIS Monsieur COLIS

French National Railways poster enjoining careful handling of parcels

illustration shows. All include the statement "*Ne me traitez pas comme un simple colis—je suis MONSIEUR Colis*" (Do not treat me as just a parcel —I am MR. Parcel). In America much use is made of slogans such as "Take a little time to show, every man who does not know, how to load and how to stow"; "Don't fail, to pull that nail"; and "It's a good plan to erase, double marks from a case."

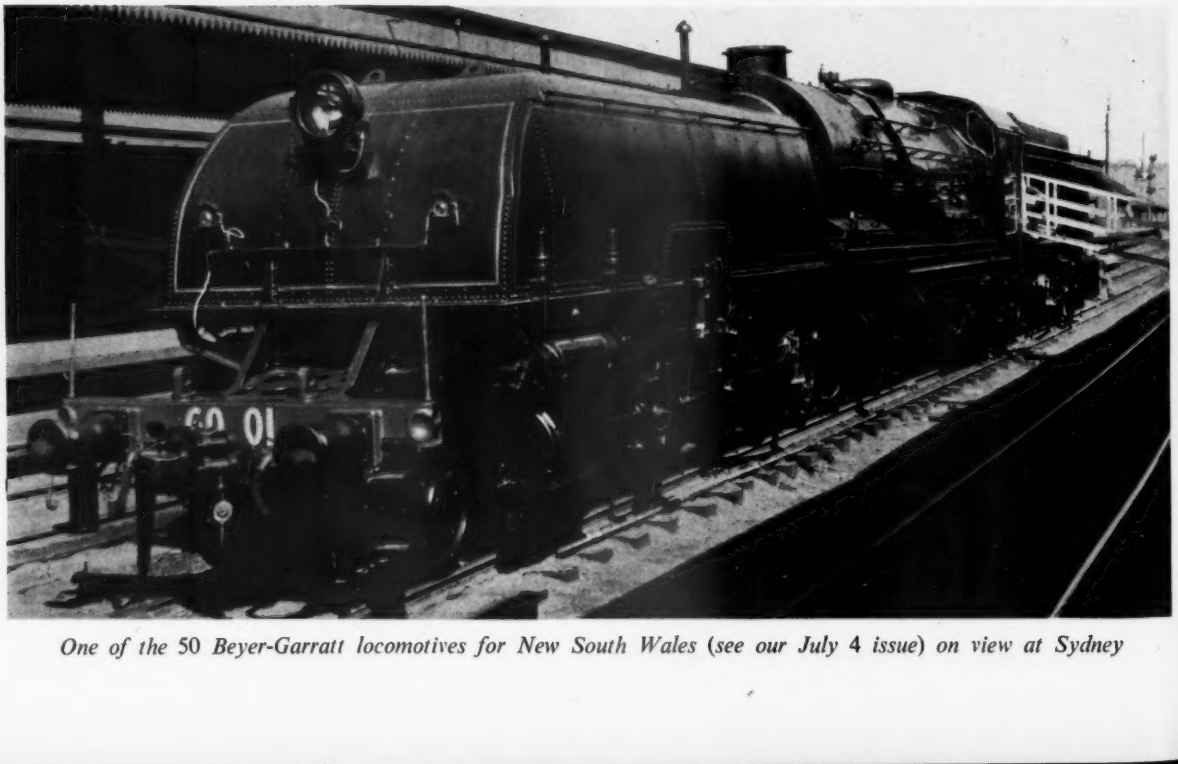
The S.N.C.F. recently completed its first film on claims prevention, "*Monsieur Colis vous parle*" (Mr. Parcel speaks to you), which shows the dangers which beset goods when they are despatched by rail, as well as the loss both to the S.N.C.F. and its staff caused by bad handling, and so on. Films have also been made by U.S.A. railways, one example being "Easy does it," already referred to. The American films are essentially instructional, whereas the French have a more personal touch. One measure taken by the S.N.C.F. to enlist the co-operation of the staff is the granting of bonuses; all staff qualify for an annual bonus which can be withheld or reduced where misdemeanour is proved.

Co-operation with Traders

Co-operation with traders has reached its most advanced stage in the U.S.A. Besides the Freight Loading & Container Bureau of the A.A.R., there are the thirteen Regional Shippers' Advisory Boards covering the whole country. The boards meet at regular intervals to discuss matters of mutual interest and exchange information on transport subjects. In the U.S.A. the month of April each year is devoted to a "Perfect Shipping" campaign. The success of the "Perfect Shipping" months has been much helped by the Shippers Advisory Boards. While co-operation with traders has not been overlooked in Europe, less attention has not been given to it than in the U.S.A.

(*Concluded*)

Largest Beyer-Garratt on View in New South Wales



One of the 50 Beyer-Garratt locomotives for New South Wales (see our July 4 issue) on view at Sydney

RAILWAY NEWS SECTION

PERSONAL

Mr. M. S. Hatchell, A.M.I.Mech.E., M.I.Loco.E., Principal Assistant (Locomotives), Mechanical & Electrical Engineer's Department, Derby, London Midland Region, who, as recorded in our October 10 issue, has been appointed Mechanical & Electrical Engineer, Scottish Region, was educated at Haileybury College and began his engineering career as a pupil at Brighton Locomotive Works, L.B.S.C.R., in 1920. After a period on inspection duties he was appointed assistant to the Works Manager, Eastleigh Locomotive Works, Southern Railway, in 1928, and in 1938 was transferred to Ashford as Assistant Works Manager. Mr. Hatchell became Carriage & Wagon Works Manager, Eastleigh (1941); Works Manager, Ashford (1942), and Assistant to Chief Mechanical Engineer, Brighton (1946). In 1948 he was appointed Principal Assistant (Locomotives) to the Chief Mechanical Engineer, Derby, London Midland Region, British Railways.

Mr. M. S. Hatchell
Appointed Mechanical & Electrical Engineer, Scottish Region

The late Sir Harold Clapp
Chairman of the Victorian Railways Commissioners, 1920-39

Sir Harold Clapp, whose death we recorded briefly in our issue of October 24, was born in Melbourne in 1875, and educated at Brighton Grammar School and Melbourne Church of England Grammar School. After apprenticeship with the Otis Engineering Company of Melbourne he joined the Brisbane Tramway Company, which had just begun to electrify its horse tramway system, and was for four years Motive Power Superintendent of that concern. In 1901 he went to the U.S.A., where he served six years with the General Electric Company of Schenectady, New York, representing the company's interests in various urban electric railways, the New York Central System, and other operating companies. Sir (then Mr.) Harold Clapp was also sent by the General Electric Company to take charge of the electrification of the West Jersey & Seashore Division of the Pennsylvania Railroad. He joined the Southern Pacific Railroad in 1908, and was placed in charge of engineering details in suburban electrification in the San Francisco area. Later he became Manager of the Columbus Railway Power & Light Company, Ohio; at the same time he was Vice President in charge of a group of electric power, lighting, and traction properties owned by the same management in Central Illinois. He also was Vice President of the East St. Louis & Suburban Railway, and of the E. W. Clark & Company Management Corporation. In 1920 he was appointed Chairman of the Victorian Railways Commissioners and was reappointed in 1925, 1930, and 1935 for further periods of five years. In 1924 he was Chairman of the Interstate Commissioners' Conference in Melbourne. Shortly before the outbreak of war, in 1939, the Commonwealth Government appointed him to be General Manager of Commonwealth Aircraft Construction. In 1942, the appointment was announced of Sir Harold Clapp, who had received the honour of K.B.E. in the 1941 New Year Honours, as Director General of Land Transport. He was released from his duties in that position by the Commonwealth Government in 1944, in order to prepare a detailed plan for the unification of the Australian railway gauges. Sir Harold Clapp, among many other activities, was Chairman of the Honorary Board of Control, Australian National Travel Association.

Sir Harold Clapp—An Appreciation

Mr. John Elliot writes:—

To say that Harold Clapp was Chairman of the Victorian Railways (Australia) for a number of years is to make a considerable understatement. For the truth is that this dynamic and remarkable man revolutionised an old-fashioned system, giving it new life and enthusiasm, in much the same way that Raoul Dautry rejuvenated the old Etat of France. It was Clapp who, on his recall from the Southern Pacific Railroad, where he was a Vice-President, introduced more reforms and sound innovations than had ever been done before in the history of the Victorian Railways. Among them were the long-welded rail, the technique of which he had learned on the Southern Pacific, and which is standard practice on the Victorian Railways: the Welfare &

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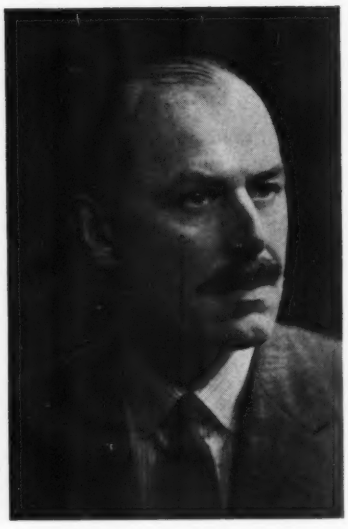

Mr. F. R. L. Barnwell

Appointed District Engineer, Shrewsbury, Western Region

Mr. Louis A. Williams

Assistant Irish Traffic Manager, British Railways, Dublin, who has retired

Mr. W. P. Allen

Assistant to Commercial Superintendent (Freight), North Eastern Region, who has retired

Staff Association campaign which linked the V.R. staff and the management, and which is still one of the most remarkable employer/employee relationships in the railway world (it was said of Harold Clapp that on line inspections he never failed to visit every railway home and say "Hello" to the wife and family): the rejuvenation of the tourist industry within Australia to and from Victoria, and, of course, his inception and building of the first all-steel air-conditioned train in the Antipodes, the famous "Spirit of Progress" on the Melbourne/Sydney run.

Only a few weeks ago Clapp had a happy day with his many old friends and colleagues, when the first of the new Victorian Railways diesel-electric main-line locomotives was put into traffic bearing his name, and the latest issue of the *V.R. News-Letter*, which the writer received only yesterday, shows the old champion looking out of the driver's cab with as keen an interest as ever. In the latter years of his life he accepted, under pressure from the Federal Government, the thankless task of reviewing the old and thorny problem of gauge unification in Australia.

Not only Australia, but the whole railway fraternity has lost a great leader and a fine character.

Mr. F. R. L. Barnwell, O.B.E., A.M.I.C.E., District Engineer, Inverness, Scottish Region, who has been appointed District Engineer, Shrewsbury, Western Region, was educated at Repton, and joined the L.N.E.R. in 1926. In 1929-39 he served mainly in the New Works and Steel Works Departments and was Resident Engineer at many new works in connection with the Liverpool Street to Shenfield electrification. During the war of 1939-45 he served in France and North Africa, later commanding No. 1 Railway Construction & Maintenance Group in Italy. He was awarded the O.B.E., holds the American Bronze Star Medal and was Mentioned in Despatches. He now holds the rank of Lt. Colonel in the Army Emergency Reserve. In 1946 Mr. Barnwell returned to Sheffield as Assistant District Engineer, L.N.E.R., and in 1949 transferred to Stratford in a similar capacity, and two years later to Inverness as District Engineer.

Mr. Louis A. Williams, Assistant Irish Traffic Manager, British Railways, Dublin, who has retired, joined the former L.N.W.R. in 1904, at Limerick, where his father was the Traffic Agent. He was transferred to the Irish Traffic Manager's Office in Dublin in January, 1908. After experience in many sections he was appointed Chief Staff Clerk in January, 1926, and Assistant Manager in January, 1943.

Mr. W. D. Waddell has retired as Assistant to the Vice-President in charge of Accounting, Canadian National Railways.

Sir Archibald J. Boyd has been appointed a head office Director of the General Accident Fire & Life Assurance Corporation Limited. He is Managing Director, Metropolitan-Cammell Carriage & Wagon Co. Ltd.

At the recent annual council meeting of the Traders' Traffic Conference, Mr. H. R. Caulfield-Giles was re-elected to the Chairmanship for the 13th successive year. Mr. W. Ingleson was re-elected Vice Chairman, and Mr. A. W. H. Bowler as Honorary Treasurer.

The following appointments to the board of Powers-Samas Accounting Machines Limited are announced: Mr. F. G. English, General Manager of the Production Division; Mr. F. J. Nash, General Manager of the Sales Division; and Mr. W. D. Opher, a Director of Vickers-Armstrongs Limited.

Mr. A. C. Edrich, A.M.I.C.E., formerly Senior Assistant to the Permanent Way Engineer (Railways), London Transport Executive, who, as recorded in our August 1 issue, has been appointed an officer of the Executive with the title of Permanent Way Engineer (Railways), is 41, and entered the service of the Metropolitan District Railway in 1930 as an apprentice at Lillie Bridge. In 1934 he became an engineering cadet and rose by 1938 to Liaison Assistant for Engineering Works on the Bakerloo Line in connection with the 1935-40 New Works Programme. He was appointed Senior Assistant to the Permanent Way Engineer (Railways) in 1944.

Mr. W. P. Allen, M.C., M.Inst.T., who has retired as Assistant to Commercial Superintendent (Freight), North Eastern Region, joined the North Eastern Railway in 1910, after leaving St. Peter's School, York, and during the next four years received training in all branches of traffic department work. He was commissioned during the first world war and awarded the Military Cross. He returned to the General Superintendent's Office, York, and subsequently became Head of Trains & Demurrage Section of the Goods Manager's Office, York, and Chief Staff Clerk, Superintendent's Office, York. In 1927 he was appointed Dock Superintendent, Middlesbrough. Mr. Allen became District Goods & Dock Manager at West Hartlepool in March, 1940, and during his stay there was Chairman of the Port Emergency Committee, Ministry of War Transport, and Member of the Hartlepools Port & Harbour Commission. Between 1943-45, when he was Acting District Goods Manager at Hull, he served as Deputy Chairman of the Port Emergency Committee, Ministry of War Transport, and a Member of the Humber Conservancy Board. Before taking up the post of District Goods Manager (later designated District Goods Superintendent) at Newcastle in 1945, Mr. Allen was Acting District Superintendent at Darlington for a short time. Whilst at Newcastle he was a Member of the Blyth Harbour Commission. He became Assistant to Commercial Superintendent (Freight), North Eastern Region, early this year.

We regret to record the death on October 17 at the age of 65 of Colonel J. S. A. Walker, T.D., J.P., M.I.C.E., M.I.Mech.E., Vice Chairman of Walker Brothers (Wigan) Limited. Colonel Walker was actively engaged as a full-time Director of Walker Brothers up to his retirement in 1947, after which he continued to serve the firm in an advisory capacity and retained his seat on the board. He had a distinguished record as a soldier in the first world war; throughout the war of 1939-45 he directed the output of ammunition and other war equipment produced at his company's Pagefield Works. He was Chairman of the Governing Body of the Wigan & District Mining

& Technical College, and held many other honorary appointments, particularly in connection with Wigan, with which town his family was long associated; he was also a part-time Member of the North Western Electricity Board.

Mr. E. Mathews, Stationmaster, Waterloo, Southern Region, is retiring today. He will be succeeded by Mr. L. J. Cox.

Mr. W. C. Hymus has been appointed Commissioner of Development for the Canadian National Railways, with headquarters in Montreal.

The appointment is announced by British Railways, North Eastern Region, of Mr. Sidney Clifford Pearson, Assistant (Special Duties) in the office of the Commercial Superintendent, York, as Assistant District Goods Superintendent. Newcastle-on-Tyne.

At a private luncheon held at the Constitutional Club. London, on October 24, the Lancashire & Yorkshire Railway ex-Officers' Association, which was formed many years ago, was revived. The title will be ex Lancashire & Yorkshire Railway Officers' Association and 54 members have been enrolled. 22 members attended the luncheon and the following officers were appointed: Sir Arthur Watson, President; Mr. T. W. Royle, Chairman; Colonel H. E. Roberts, Honorary Secretary. The next meeting will be held early in the Spring of next year.

Mr. J. R. Turk, General Assistant, Accountants' Department, Deepdene, Southern Region, who, as recorded in our September 12 issue, has been appointed Assistant to the Accountant, received a grammar school education, and after joining a L.S.W.R. booking office, was transferred to the Chief Accountant's Office at Waterloo. Later he was employed in the Locomotive Accountant's Section, dealing primarily with London Passenger Pool accounts, of which he was an investigator from the inception of the scheme, and was specially concerned with the L.P.T.B. buses and coaches, and the L.M.S.R. costs. In 1939 the Chief Accountant transferred Mr. Turk to his personal staff, in which section he served until 1942, when he was the youngest of a team of investigating officers appointed by the Ministry of War Transport to examine the accounts compiled under the Railway Control Agreement. In 1946 he was recalled as Special Assistant to the Southern Railway Accountant to deal primarily with matters arising from nationalisation and the revisions of rates and charges. He was promoted General Assistant in 1948. Mr. Turk was a student at the London School of Economics for many years, where he gained the Brunel Medal in 1927. He passed the Associate examination of the Corporation of Accountants in 1926, and that of the Institute of Transport in 1934. In 1932 he was appointed Lecturer to University College, Southampton, in the subjects of Transport Finance and Accounting, Railway Statistics, Economics of Railway Transport, and Elements of Transport, and was also Lecturer at the Kennington (L.C.C.) Commercial Institute until the war. During the last five years he has organised and run a month's residential course at the Staff Training College, Woking, for members of the staff of the Southern Region Accountant's Office. He is Honorary Auditor of the Southern Region Lecture & Debating Society, and holds the Southern Railway Ambulance Centre's gold medal.

Electric Horses for C. & D. Services

Experiments by British Railways with 100 *units in* 16 *towns and cities*

For many years railways in Great Britain led the way in the development of motor vehicles specially suited to short-distance collection and delivery work. The petrol-driven mechanical-horse introduced, with the co-operation of manufacturers, by the railways over 20 years ago, has done excellent work, and some 8,000 of these units are being used today by British Railways—not to mention very many other users who have profited from railway enterprise in this respect.

Nevertheless, it is considered possible that much of the work carried out by the mechanical horse might be done more efficiently, on the whole, by an electric horse. British Railways are therefore engaged on a large-scale experiment. With the co-operation of Austin Crompton Parkinson Electric Vehicles Limited, 100 electric horses are being set to work at 16 cities and towns throughout the country, following experiments for over a year with a prototype vehicle. Twelve of these electric horses have been working successfully in Hull, where a demonstration of their capabilities was given at the Railway Street Goods Depot on October 21. Hitherto some of them have been operating with light loads, but they have now been adapted for fairly heavy loads to take part in the large-scale experiment which began in Hull on that date. Hull now has fewer than 20 animals in railway cartage service, and these are almost solely confined to the docks.

The electric horse is a 4-wheel articulated tractor working with standard mechanical-horse trailers, the coupling being interchangeable. Nominally a 2-tonner, it can carry a 2½-ton payload. Its normal range is 25 miles per battery charge, and its maximum speed loaded and on the level is 18 m.p.h. The unit can climb a 1 in 9 gradient with a full load. The electric horse is easy to drive, easy to maintain, clean in use, and free from starting troubles in the winter. Electric horses are to be employed in the course of these experiments at:—

Hull	Ponders End
Harrogate	Grimsby
Scarborough	Spalding
Leeds	Newport (Mon.)
Newcastle	Nottingham
Middlesbrough	Derby
Bishop Auckland	Croydon
Welwyn Garden City	Brighton

Power for the electric horse is supplied by a 96-V. specially armoured traction battery, with a capacity at the 5-hr. rating of 200 amp.-hr. The motor has a 1-hr. rating of 12½ h.p. at 90 V. Five control notches are provided, the battery being connected in two parallel sections for the first four and in series to give full motor voltage on the fifth. Notches 1 to 3 are on resistances. The fourth notch gives an economical running speed for delivery duties where a large number of stops is involved. Notch 5 is for straight running without stops. The solenoid-contactor type controller is operated by an automatic delayed-action footswitch, and an independent foot switch introduces the series circuit. The reverser is hand-operated.

Principal dimensions of the tractor are as follow:—

Overall length	13 ft. 2 in.
,, width	6 ft. 0 in.
,, height	6 ft. 10 in.
Wheelbase	5 ft. 11½ in.
Front wheel track	5 ft. 1 in.
Rear wheel track	4 ft. 7 in.
Turning circle	25 ft. 0 in.

Unladen weight, including battery, is 2 tons 4 cwt., or 1 ton 3 cwt. without battery. The battery is mounted in two crates, one suspended on each side of the frame. Girling hydraulically-operated two-leading-shoe brakes are fitted to all four wheels. The back axle is fully floating, with spiral bevel drive and a single-reduction ratio of 6·57 to 1.

One of the British Railways electric horses and trailers now beginning a large-scale experiment at sixteen centres

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British Transport Commission Statistics. (Period No. 9)

Summary of the principal statistics for the four-week period ending September 7

STAFF

—	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Commercial Advertisement	Legal	Films	Total
Number ...	282	610,160	98,216	74,356	62,937	16,734	6,557	4,787	21,192	584	199	320	42	896,366
Inc. or dec.	−1	−319	−258	−625	−284	−193	−65	−23	+6	−6	—	−3	—	−1,771

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

—	Four weeks (Period No. 9)		Aggregate for 36 weeks	
	1952	1951	1952	1951
	£000	£000	£000	£000
British Railways—				
Passengers	10,582	10,443	79,627	77,385
Parcels, etc., by passenger train	2,793	2,633	24,343	22,653
Merchandise	7,422	7,443	70,200	66,291
Minerals	3,139	2,723	28,371	24,319
Coal & Coke	7,233	7,172	68,577	61,537
Livestock	202	176	1,048	824
	31,371	30,590	272,166	253,009
British Railways— C. & D. and other road services	855	816	7,891	7,217
Ships and Vessels	1,457	1,502	8,540	8,762
London Transport—				
Railways	1,389	1,249	12,316	11,107
Buses & coaches	3,263	2,737	27,065	23,143
Trolleybuses	725	739	6,632	6,733
	5,377	4,725	46,013	40,983
British Road Services— Freight charges, etc.	5,731	6,101	52,252	52,132
Road Passenger Transport	4,674	4,213	33,579	30,482
Docks, Harbours & Wharves ...	1,251	1,167	11,098	9,416
Inland Waterways	181	163	1,533	1,353
Hotels & Catering	1,407	1,414	11,306	11,180
Total	52,304	50,691	444,378	414,534

LONDON TRANSPORT

—	Passenger journeys	Inc. or dec per cent over 195	Car miles	Inc. or dec. per cent over 1951
	000		000	
Railways...	41,638	−11·9	16,846	− 6·2
Buses & coaches	228,298	− 0·9	27,930	+ 5·3
Trolleybuses	58,111	−20·9	5,822	−21·6
Total	328,047	− 6·6	50,598	− 2·5

INLAND WATERWAYS

Tonnage of traffic and ton miles

—	Tonnage	Inc. or dec. per cent over 1951	Ton miles	Inc. or dec. per cent over 1951
	000		000	
Coal, coke, patent fuel & peat	447	+4·4	6,686	−2·2
Liquids in bulk	144	−2·1	4,149	+5·4
General merchandise	321	−3·9	5,227	−3·9
Total	912	+0·3	16,062	−0·9

BRITISH RAILWAYS

Rolling Stock Position

—	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1951
Locomotives	18,885	3,302	15,583	15,604
Coaching vehicles	57,662	5,067	52,595	53,275
Freight wagons...	1,121,624	100,880	1,020,744	1,031,346

BRITISH RAILWAYS

Passenger Journeys (Month of July, 1952)

Full fares	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent over 1951
19,840,000	29,724,000	5,282,000	16,788,000	18,323,000	89,957,000	−4·8

BRITISH RAILWAYS

Freight Tonnage Originating and Estimated Ton-Miles (Period No. 9)

—	Merchandise	Minerals	Coal & coke	Livestock	Total	Inc. or dec. per cent over 1951
	000	000	000	000	000	
Tons originating ...	3,679	4,664	12,393	109	20,845	−4·0
Ton-miles	487,958*	379,774	743,598	—	1,611,330	−4·3

* Includes livestock

BRITISH RAILWAYS (Period No. 9)

—	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train-miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1952	16,128,000	3,892,000	10,449,000	9·0	597	1,002,000	58·6
1951	16,098,000	3,869,000	10,696,000	8·7	596	1,029,000	59·3

European Timetable & Through Carriage Conference, 1952

Alterations in international passenger services effective from May, 1953, agreed at the conference at Nice

At the invitation of the French National Railways, delegates of European railway administrations, and of systems in the Near and Middle East whose services connect with those of the European railways, met in Nice on October 1-11 for the 1952 European Timetable & Through Carriage Conference. The Secretariat of the conference was provided as usual by the Swiss Federal Railways, though the more important international expresses have their "managing administrations," provided by one or other of the railways, such as that of the "Nord Express," provided by the Belgian National Railways; these managing administrations function within the framework of the main conference.

Although delegates were concerned mainly with the operating aspects of international passenger traffic, various commercial questions were discussed as usual, most delegations including commercial representatives. The largest delegations were those of the S.N.C.F., the German Federal Railways, and the Cie. Internationale des Wagons-Lits, but the Spanish and Portuguese delegations were larger than usual. The U.S.S.R. railways were represented, and the United Nations Organisation. The only European countries not represented were Bulgaria and Roumania.

The British Railways' delegation consisted of:—

Railway Executive: Mr. R. H. Hacker, Chief Officer (Continental).

Eastern Region: Messrs. L. H. K. Neil (Continental Traffic Manager), V. Wadeson (Chief of Passenger Section, Continental Traffic Manager's Office), and C. H. Archer.

Southern Region: Messrs. R. E. Sinfield (Continental Superintendent), S. W. Smart (Superintendent of Operation), E. W. Dean (Passenger Assistant to Continental Superintendent), H. B. Colgate, and S. W. Robins.

Paris Office: Mr. P. C. Durrant (General Agent for France).

It was agreed at a plenary session of the conference that the 1953 summer services should operate from May 17 to October 3, and the 1953-54 winter services from October 4 to May 15, 1954. Next year's conference is to be held, at the invitation of the Hellenic State Railways, in Athens, on October 7-17.

Brief particulars of the summer, 1953, services as they affect connections with British Railways Continental services are given below.

Services via Dover/Ostend

Besides the morning and afternoon Dover/Ostend sailings there will be the night service every night during the high season.

Considerable changes were made in the "Tauern Express" and "Nord Express" services from and to Ostend, as a result of which important accelerations to the "Tauern Express" have been effected. These involve a re-distribution of traffic over the Dover/Ostend services. In addition, supplementary trains from Ostend to Munich and beyond were agreed with a view to improving the working of traffic to South Germany and beyond. Instead of leaving Victoria in the afternoon passengers wishing to travel to Berlin, Hamburg, Copenhagen, and beyond, by the "Nord Express" from Ostend will leave Victoria at 10 a.m., reaching Copenhagen about 6.30 instead of 8.30 p.m. Westbound "Nord Express" passengers will connect at Ostend with the 2.30 p.m. steamer instead of the morning sailing.

The "Tauern Express," with its variety of through carriages, will leave Ostend Quay at 9 p.m. and connect with the 2.30 p.m. service from Victoria instead of with the 10 a.m. departure. Arrivals at the principal stations served by the "Tauern Express" will be as follows: Munich 10.45 a.m., Salzburg 1.3 p.m., Klagenfurt 6.11 p.m., Belgrade 6.57 a.m. (third day). Westbound, there will be connections with the morning sailing from Ostend.

The Ostend branch of the "Orient Express," which connects with the afternoon boat train from Victoria will connect with the 10 a.m. service from Victoria. Westbound passengers by this service from Vienna will cross from Ostend by the 2.30 p.m. instead of by the morning ship.

Services to Spain

The "Sud Express" is to be accelerated, though details are not yet available. Northbound, arrival at Paris Austerlitz will be at 7.30 p.m., instead of 11.30 p.m., which will give a connection with the "Night Ferry" from Paris Nord to London.

Switzerland via Short Sea Routes

The 4.30 p.m. service from Victoria to Switzerland and Austria will resume on May 29, 1953, and operate daily until October 1, with a return service from Basle. Timetable and through carriage details for these services will be finalised at a meeting to be held in Munich in the middle of November.

"Simplon—Orient Express"

The "Simplon—Orient Express" will be accelerated, leaving Paris Lyon at 7.50 p.m. and reaching Milan at 7.45 a.m. and Zagreb at 10.40 p.m. on the second day, Belgrade at 6.10 a.m. on the third day, and Salonica at 12.5 a.m. and Athens at 12.35 p.m. on the fourth day. Because of the closure of the Bulgarian frontiers, the Paris—Istanbul sleeping car will run *via* Salonica, Alexandropolis and Pythion. There will be corresponding accelerations westbound.

"Orient Express"

Acceleration by some hours of the "Orient Express" between Paris, Munich, and Vienna, will be facilitated by further electrification of the Austrian Federal Railways between Amstetten and Vienna Westbahnhof.

Austria via the Arlberg

The "Arlberg—Orient Express" will take about one hour less between Paris and Vienna *via* Basle, Innsbruck, and Salzburg. The Calais branch of this train, *via* Strasbourg and Munich, will continue to connect with the afternoon service from Victoria *via* Folkestone/Calais.

Harwich Continental Services

Because of heavy traffic out on Friday nights during the summer peak for Scandinavia, Hamburg, and North Germany, and Dutch stations on the line of route of the "Holland-Scandinavia Express," and of heavy traffic from Holland proper to Scandinavia, the "Holland-Scandinavia Express" will be relieved of passengers from Great Britain to a number of Dutch stations and to stations in Germany on Saturdays during the high season. A second train will run from The Hook to Hamburg two hours after the departure of the "Holland-Scandinavia Express" at 6.57.

Segregation of passengers from Great Britain will be necessary so that those for Scandinavia, and stations beyond Hamburg and in South Germany and beyond, may be conveyed by the regular service arriving at the Hook of Holland at 5.45 with departures to South Germany, Switzerland, and Scandinavia at 6.25, 6.38 and 6.57 ("Rhinegold," "Lorelei" and "Holland-Scandinavia Express"). Passengers for Holland and intermediate German stations to Hamburg and Hanover will be conveyed by the relief steamer.

"Rhine Arrow" and "Rhinegold"

Concern has been expressed by the Netherlands and German Railways regarding the light loading of the "Rhine Arrow" from The Hook. British Railways have given the train good publicity, but confusion is caused by the similarity of the names "Rhine Arrow" and "Rhinegold." British Railways therefore proposed that consideration be given to changing the name of the "Rhine Arrow." It was agreed that the existing "Rhine Arrow" be re-named "Rhinegold" as it runs in the prewar "Rhinegold" timings and that the existing "Rhinegold" be called "The Lorelei."

There will be no material change in the running times, through carriages and destinations of these two trains, except that the new "Rhinegold" will include a coach between The Hook and Rome.

Harwich—Hook Day Service

The departure of the "Day Continental" from Liverpool Street next summer will be advanced to 9.33 a.m. An arrival at Cologne at 10.45 p.m. instead of 12.10 a.m. will mean correspondingly earlier arrivals in Basle and Munich and will offer much better timings to stations in the Ruhr district.

The new train from the Hook of Holland will be named the "Holland Austrian Express" and will have through coaches to and from Graz, Innsbruck, and (*via* Gotthard) Genoa.

To secure the improved earlier running of this train from The Hook, the Netherlands Railways have undertaken to replace the second track for a distance of 6 km. between Eindhoven and Venlo.

Last summer, improved connections to and from Scandinavia by the day service were given by the "North West Express." It was impossible to obtain the running of this train throughout the year but its reinstatement in the summer of 1953 was agreed.

Grossenbrode—Gedser Train Ferry

The "Scandinavia-Italy Express" will be re-routed *via* Gedser, Grossenbrode, Lübeck, and Lüneburg, avoiding Hamburg and, it is understood, running non-stop between Lübeck and Hanover.

To avoid crowding of the "Nord Express" between Hamburg and Copenhagen, the German Federal and Danish State Railways have agreed to route as much traffic as possible between Germany and Copenhagen *via* Grossenbrode and Gedser instead of *via* Flensburg, Fredericia, and the Great Belt train ferry.

XUM

Harrow Accident Memorial Service

A memorial service for those railway employees who lost their lives in the accident at Harrow & Wealdstone, L.M.R., on October 8, and a service of thanksgiving for those whose lives were spared, was held at St. Marylebone Parish Church, London, W.1, on October 23. The service was conducted by the Reverend W. P. Baddeley, Vicar of St. Pancras, and the prayers were offered by the Reverend J. D. Richards, Vicar of St. John the Baptist, Greenhill, Harrow. The Lord Bishop of Stepney, the Right Reverend Joost de Blank (a former Vicar of St. John the Baptist), gave the address. The lesson was read by Mr. J. Taylor Thompson, Civil Engineer, London Midland Region.

In his address the Bishop said that this was a service both of memorial and of thanksgiving. They must give thanks not only for those who were spared, but for the daily work of all railwaymen and for the way in which the sudden crisis at Harrow had called forth their powers of organisation in the work of rescue and relief of suffering.

The congregation numbered over 1,000. Lord Leathers, Secretary of State for the Co-ordination of Transport, Fuel, and Power, was represented at the service by his Personal Secretary. Among others present were:—

Mr. A. T. Lennox Boyd, Minister of Transport ; Lord Hurcomb, Chairman, and the Members of the British Transport Commission ; Lord Latham, Chairman, London Transport Executive ; Mr. John Elliot, Chairman, and the Members of the Railway Executive ; Sir Robert Letch, Deputy Chairman, Docks & Inland Waterways Executive ; Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, Ministry of Transport.

Mr. J. W. Watkins, Chief Regional Officer, L.M.R., and the Chief Regional Officers of the Eastern, North-Eastern, Scottish, Southern, and Western Regions.

Messrs. F. W. Abraham, Motive Power Superintendent, L.M.R. ; S. G. Hearn, Operating Superintendent, L.M.R. ; F. G. Hole, Member, Hotels Executive ; W. R. Keith, Hotels Executive ; J. Taylor Thompson, Civil Engineer, L.M.R. ; S. Williams, Signal & Telecommunications Engineer, L.M.R.

The widows of Driver Jones and Fireman Turnock of the Perth express and the widow of Driver Perkins of the Manchester express, among the many relatives of the railwaymen who were killed and injured ; Signalman A. G. Armitage, who was on duty at Harrow No. 1 Box on the day of the accident.

The Chairmen of the N.U.R., T.S.S.A., and A.S.L.E.F. ; the Mayors of St. Pancras, Watford, and Marylebone and the Chairman of the Harrow U.D.C., Mr. F. P. Bishop, M.P. for Harrow Central ; Mr. John Freeman, M.P. for Watford. Mr. B. K. Cooper, representing Mr. B. W. C. Cooke, Editor, *The Railway Gazette* ; Mr. Charles F. Klapper, representing Mr. D. R. Lamb, Editor, *Modern Transport*.

Representatives from all the organisations who assisted at Harrow : the U.S.A.F., Salvation Army, R.A.F., St. John's, Red Cross, Civil Defence and Police.

In addition railway representatives from all parts of the London Midland Region attended the service.

THE TAX BURDEN: PROTEST BY MR. GEORGE WOOD.—The Chairman of Thos. W. Ward Limited, Mr. George Wood, comments in his annual report for the year ended June 30, 1952, on the heavy burden of taxation, which takes some 60 per cent of the group profit. On the one hand, he states, industrialists are being urged to modernise their equipment so that they can compete in world markets, whilst on the other they are being denuded of the essential finances to achieve this very object. A final ordinary dividend of 10 per cent and a bonus of 5 per cent less tax are recommended by the directors. Trading profit was £1,075,364.

At the Harrow accident memorial service: right to left, Mr. John Elliot, Mr. F. A. Pope, Lord Hurcomb, and Sir Robert Letch

Parliamentary Notes

Harrow Accident Inquiry

There were several questions in the House of Commons on October 27 arising out of the Harrow accident inquiry. In reply to a question by Mr. Nabarro (Kidderminster—C.) Mr. A. Lennox-Boyd said that information regarding the numbers and types of railway accidents on British Railways is given, Region by Region, in the annual reports of the Chief Inspecting Officer of Railways. He was informed that during the four years 1948-1951 for each fatal passenger casualty in a train accident on the London Midland Region, nearly 18,000,000 passengers were carried. During the same period there were no fatal passenger casualties on the Western Region. He added in reply to a further question on the same subject that he was sure that no review would ever leave in any doubt the great obligation they were under to the pioneers of the Great Western Railway for the work they did in A.T.C. development.

Steel Allocation for Wagon Building

Mr. A. T. Lennox-Boyd replied to Mr. J. A. Sparks (Acton—Lab.) on October 27 that the recent order for wagons placed by the B.T.C. with private firms was in line with normal railway policy of building a proportion of their wagon requirements in private shops. Private wagon manufacturers were subject to the same procedure of allocation of available steel supplies as the railways. He expected that there would be an increase in the allocation of steel to the British Railways workshops for the period beginning January 1, 1953.

Consultations on Transport Bill

Mr. David Jones (Hartlepools—Lab.) on October 27 asked the Minister of Transport if he would publish a list of the commercial, industrial and political organisations which he had consulted in connection with the proposed Transport Bill, since the date on which the text of the Bill was first published.

Mr. A. T. Lennox-Boyd in reply circulated a list of 19 organisations.

Capital Expenditure on Transport System

Asked by Mr. A. Edward Davies (Stoke-on-Trent, North—Lab.) on October 27 whether he was aware of the necessity to increase the capital expenditure on the British Transport system; and what steps he was taking to achieve that end, Mr. Lennox-Boyd said that in common with many other vital services, the British Transport Commission's capital expenditure had still to be restricted, but the needs of transport were fully recognised and the provision for capital investment in 1953 allowed for an increased expenditure compared with that in 1952.

Government Steel Policy Approved

The House of Commons on October 23 by 303 votes to 269 approved the Government's policy as to the iron and steel industry set out in the White Paper.

Mr. Duncan Sandys (Minister of Supply) said the Government proposed to set up two distinct bodies, a Board to supervise the industry and an Agency to take over and dispose of the assets now owned by the State. The Agency would act on behalf of the Treasury in a dual capacity, as a holding company and as a disposals organisation. It would be financed by the Treasury. They proposed to give the Agency very wide discretion in its selling operations, and power to effect amalgamations and modifications of capital structure in the companies before offering them for

sale, subject to approval of the Iron & Steel Board. So long as the steel companies continued to be held by the Agency, *i.e.*, were State-owned, they would continue to receive financial facilities from the Treasury. The Bill would provide for compensation of employees of nationalised companies who might suffer as a result of amalgamations or in other ways.

Duties of Board

The Board, Mr. Sandys explained, would be empowered to require all major schemes of development to be submitted to it and they would have the right to withhold approval of large schemes likely seriously to prejudice the balanced development of the industry. It would keep production facilities under regular review to ensure that the requirements of the metal-using industries and the export trade were met.

The second major responsibility of the Board would be in regard to prices, but with a reserve over-riding power for the Government should the national interest require intervention.

The Board's third function, said Mr. Sandys, concerned supply of raw materials.

Concluding, Mr. Sandys said that the proposals in the White Paper fully and faithfully implemented the principles enunciated by the Conservative Party in opposition. On the other hand, the Labour Party could claim that the Government proposals contained features which they might consider were partly inspired by the board it set up in 1946 and the T.U.C. report of 1950. They were quite prepared to share with Members opposite the paternity of this fine child.

Mr. Herbert Morrison (Lewisham South —Lab.), for the Opposition, deprecated "upsetting the apple cart" of nationalisation when the financial results of the industry were good and output reasonably good. Under the Government policy, the future of the industry was uncertain. Many millions would have to be invested in the industry if it was to do the job, but the Minister did not say where the money was coming from. Part of the steel industry, and perhaps the profitable part, would be sold to private investors who might be steel men but were just as likely to be bankers and insurance people.

The next Labour Government, Mr. Morrison said, would take back into public ownership the units it needed, and would not pay again for what had already been paid for in this process of denationalisation. For these reasons they were opposed to the policy set out in the White Paper and against which they would vote.

Questions in Parliament

Export of Railway Equipment

Major S. F. Markham (Buckingham—C.) on October 23 asked the President of the Board of Trade how many contracts for railway rolling stock or equipment for foreign countries or the Empire had been tendered for by British firms during the past year, how many such contracts had been lost, and the total value of such lost contracts.

Mr. Peter Thorneycroft: Makers of railway equipment for overseas markets are free to tender for contracts as they think appropriate. I have no record of the tenders put forward nor of the value of contracts lost.

Steel for Railway Workshops

Mr. A. J. Champion (S.E. Derbyshire—Lab.) on October 23 asked the Chancellor of the Exchequer on what basis he allocated steel for railway wagon building purposes as between the Railway Executive for use in its own wagon building shops and privately owned undertakings building wagons both for the British Railways and for export.

Sir Arthur Salter (Minister of State for Economic Affairs): Steel is allocated to private manufacturers of wagons by the Minister of Supply from an allocation made to his Department to cover the main bulk of the engineering industries. The allocation to the Railway Executive's own wagon building shops comes out of a bulk allocation to the Railway Executive by the Minister of Transport from an allocation to his Department designed to cover the needs of the railways, docks, harbours, and so on.

Allocations to Departments are made by an inter-Departmental committee presided over by a Minister.

Medical Aid in Railway Accidents

Dr. Somerville Hastings (Barking—Lab.) on October 23 asked the Minister of Health, what arrangements he had made in cases of emergency, such as the railway disaster at Harrow, to draft doctors with specialised experience in traumatic surgery to nearby hospitals so that the best-known treatment might be available.

Mr. Iain Macleod: The medical aid rendered in the Harrow disaster was prompt and efficient. The general surgeons at the hospitals concerned, though not specialists, are experienced in traumatic work. Further help was offered but not required. The tragedy will be closely studied to see what lessons can be learnt.

Staff & Labour Matters

Railway Wage Award

Each of the three railway trade unions has announced acceptance of the findings of the Railway Staff National Tribunal announced last week; but disappointment is expressed that the Tribunal has not seen fit to grant the full increase in pay rates of 10 per cent which the unions were seeking, or to make any award of additional payment for work performed on Saturday afternoon.

Acceptance by Railway Executive

In agreement with the B.T.C. the Railway Executive has decided to accept the award. Steps will be taken to put the new rates into effect as soon as possible. The cost of the increases amounts in a full year to £10,000,000.

Examples of Weekly Increases

Examples of the effect of the award on the existing rates of pay of railway staff are:—

Grade	Present Rate	New Rate	Percentage Increase
	s. d.	s. d.	
Porter	110 6	117 6	6·3
Shunter	121 0	128 0	5·8
Guard (max.) ...	132 0	139 0	5·3
Signalman, Class 3...	127 6	134 6	5·5
Checker	120 0	127 0	5·8
Driver (max.) ...	161 6	168 6	4·3
Fireman (max.) ...	136 0	143 0	5·1
Junior Porter ...	58 6	62 6	6·8
Lengthman (third year	114 6	121 6	6·1

Mr. J. B. Figgins, General Secretary of the N.U.R., in his circular to the branches, mentions the determined opposition which employers are now showing towards wages increases, and states that the Railway Executive vigorously opposed the claim. In the circumstances it was felt that the N.U.R. Executive Committee has acted wisely in accepting the increase which will, in some measure, alleviate the hardship caused by the rise in the cost of living since the last wage settlement in September, 1951. Regarding the Saturday afternoon claim, the hope is expressed that negotiations with the Railway Executive will enable the cause of the complaints to be removed.

Engineering and Shipbuilding Workers

Following on the offer of the engineering employers to increase the rates of pay of engineering employees by 7s. 4d. a week, the shipbuilding employers offered last week to increase the wages of shipyard workers by 7s. 6d. The two offers were discussed at a meeting of the executive committees of the 38 unions affiliated to the C.S.E.U., on October 29. The leaders of the C.S.E.U. informed the respective employers' federations at the time the offers were made that they were unable to accept them, but they undertook to put them before the executives of the affiliated unions on October 29.

The A.E.U., the most powerful union in the C.S.E.U., decided last week that the ban on overtime and piecework which was recently withdrawn so that negotiations could take place, would be renewed if the employers' offer was regarded as unsatisfactory. The Birmingham District Committee of the A.E.U. has already demanded protest action against the offer of 7s. 4d., which is described as an insult.

Contracts & Tenders

The Hunslet Engine Co. Ltd. has received from the Crown Agents for the Colonies an order for ten steam locomotive boilers for 0-6-0 tank engines for the Nigerian Railway.

The Auckland Harbour Bridge Authority, New Zealand, has accepted the joint tender of the Cleveland Bridge & Engineering Co. Ltd., and Dorman, Long & Co. Ltd., for the construction of a road bridge at Auckland. The value of the contract is £4,236,000. Each of the firms will fabricate approximately half of the steelwork and will work in association on the construction of the foundations and erection of the superstructure. The Consulting Engineers are Messrs. Freeman, Fox & Partners, London.

British Railways, London Midland Region, has announced that the following contracts have been placed:—

Leonard Fairclough Limited, Adlington: drainage and formation renewal of the up and down fast lines between 52 miles 572 yd. and 53 miles 86 yd. on the London–Rugby line at Wolverton. Reconstruction of the superstructure of bridge number 15 on the St. Albans–Hatfield line, carrying Cottonmill Lane over the railway, for the St. Albans City Council.

Fletcher & Co. (Contractors) Ltd., Mansfield: reconstruction of the superstructure in pre stressed concrete of pipe overbridge number 346 between Rothley and Quorn, Great Central line.

Samuel Butler & Co. Ltd., Stanningley: reconstruction of the northernmost span of bridge number 23 at Northampton on the Roade and Rugby (new) line.

Vulcanite Limited, Wigan: renewal of felt roof coverings at Liverpool Langton Dock goods depot.

W. H. Heywood & Co. Ltd., Huddersfield: renewal of roof coverings with patent glazing to platforms 1 and 4 at Leicester London Road Station.

XUM

The 19 600 b.h.p. diesel-electric locomotives recently ordered by the French National Railways and referred to in our October 10 issue, are being built by Anciens Etablissements Brissonneau & Lotz, Paris.

Siegener Eisenbahnbedarf A.G. has received an order from the Swedish State Railways for 4,000 Liegen-type buffers, fitted with ring springs to be supplied by Ringfeder G.m.b.H., of Krefeld-Uerdingen.

Reference was made in our October 10 issue to an order for steam locomotives placed some time ago with Fried. Krupp Lokomotivfabrik by the Indonesian State Railways. The number of locomotives concerned is 100 and not as stated in our October 10 issue.

The New South Wales Government Railways are enquiring for an automatic telephone exchange of 200 lines for Clyburn Station, to be in by December 10; and for equipment to increase facilities on the existing 75-line exchange at Hornsby Station, to be in by December 10.

The Luanda and Mossamedes Railway, Portuguese West Africa, is calling for tenders for various machinery to be used in its new workshops. The closing date is December 5 and a copy of the *Diario do Governo* of September 15, giving tender conditions and specifications in Portuguese will be at the Board of Trade, London, until November 3, after when it will be available on loan. Reference C.R.E. 32706/52 should be quoted.

A *Reuter's* report from Johannesburg states that tenders are being invited by the South African Railways for the supply and delivery of 200 bogie goods guards' vans, and wheels, axles, rubber drawgear, and automatic couplers for them. Tender documents may be obtained on a payment of a deposit of £50 per set. Tenders should be delivered to the Chairman, Tender Board, Johannesburg, by 9 a.m. on November 27.

BILLING STATION, L.M.R., CLOSED.—The London Midland Region announces that Billing station, between Northampton and Wellingborough, was permanently closed on Monday, October 6.

WORLD POWER CONFERENCE.—The annual meeting of the International Executive Council of the World Power Conference was held at Chicago on September 4. Sir Vincent de Ferranti, Chairman of the British National Committee, presided in his capacity of Chairman of the International Executive Council. The United Kingdom delegates were: Sir John Hacking, Dr. A. Parker, and Sir William Halcrow. The Council Meeting was attended by 33 delegates from 17 different countries. Among the matters discussed was the technical programme of the sectional meeting of the World Power Conference to be held at Rio de Janeiro from July 25-August 8, 1954, the theme of which will be the energy problems of tropical and sub-tropical countries. The new edition of the list of national committees and representatives of the World Power Conference gives the composition of 37 national committees of the World Power Conference. Copies can be obtained from the Offices of the British National Committee, World Power conference, 201-2, Grand Buildings, Trafalgar Square, London, W.C.2, price 1s. 6d. post free.

Notes and News

Vacancies for Engineers.—Required by Consulting Engineers for Belgium and the Continent, engineers experienced in the inspection of railway rolling stock. See Official Notices on page 503.

Kings Cross Centenaries Exhibition Attendance.—Some 23,400 persons visited the Centenaries Exhibition at Kings Cross during the week ended October 18, of which nearly 16,000 were adults; Saturday was the peak day, with 8,800 visitors.

Outside Representatives Required by Life Assurance Office.—A mutual life assurance office requires a number of young men, not over 30 years of age, for training as outside representatives. See Official Notices on page 503.

Farnley & Wortley Station to be Closed.—The North Eastern Region has announced that as Farnley & Wortley Station is being maintained at a considerable loss, it will be closed on Monday, November 3. Facilities will be retained for dealing with passengers alighting from inward trains stopped specially for visitors to the Leeds United Football Club Ground.

Institute of Transport Anniversary Luncheon.—The Anniversary Luncheon of the Institute of Transport will be held at the Connaught Rooms, W.C.2, at 12.30 for 1 p.m. on Wednesday, November 12. The speakers will be Mr. A. T. Lennox-Boyd, Minister of Transport, and Marshal of the Royal Air Force Sir John C. Slessor, Chief of Air Staff.

Institute of Transport.—A paper on "Statistical Methods and Operational Research in Transport" will be read before the Institute of Transport by Mr. F. A. A. Menzler, Chief Development & Research Officer, London Transport Executive, on Monday, November 17. The meeting will be held at the Jarvis Hall (R.I.B.A.), 66, Portland Place, W.1, at 5.45 p.m.

Railway Photographic Exhibition.—The Railway Photographic Exhibition, which, as recorded in our August 15 issue, was arranged by the Railway Correspondence & Travel Society and the Railway Photographic Society, at the Railway Executive Headquarters, N.W.1, between October 6-11, is also to be shown in Edinburgh and Manchester. The Exhibition will be at 25, Charlotte Square, Edinburgh, between 2-6 p.m. on November 1, and at Manchester Victoria Station from 5-8 p.m. between November 17-21, and 12.30-9.30 p.m. on November 22.

Resignalling at Dumfries.—Work has begun at Dumfries, on the Glasgow-Kilmarnock-Carlisle main line of the Scottish Region, on a major scheme of modernisation of signalling arrangements and improvements to the permanent way layout. The plans authorised include provision of colour-light signals to replace semaphores, and simplification of the permanent way. The five signal boxes at Dumfries are to be abolished and replaced by two modern boxes, one near the present No. 1 box on the Carlisle departure side of the station, and the other sited near the existing No. 4 signal box. The project is to be completed in five stages. No. 3 signal box has been dispensed with already and the remaining boxes will be removed in the final stage of the scheme. Considerable permanent way alterations have been carried out, particularly in connection with the extension of the carriage sidings on the down side of the line at the north end of Dumfries Station.

Opening of British Railways Office in Rome.—The new British Railways Office in Rome was officially opened on Monday, October 13, following a reception at which the guests were welcomed by Mr. R. H. Hacker, Chief Officer (Continental), Railway Executive; Mr. R. E. Sinfield, Continental Superintendent, Southern Region, and Mr. A. C. Raindle, General Agent in Italy. Among the guests were Sir Victor Mallet, H.B.M. Ambassador in Rome; Mr. E. J. Joint, Commercial Minister; Mr. di Raimondo, General Manager of the Italian State Railways; and Sir Alexander Maxwell, Chairman, and Mr. Bridges, Director General, British Travel & Holidays Association. The new Office is situated at 40, Via Torino.

Scottish League Cup Final Traffic.—On October 25 nine special trains were run by the Scottish Region from Dundee West to Glasgow in connection with the League Cup Final, Dundee v. Kilmarnock, at Hampden Park. Seven of the trains ran to Buchanan Street, and two direct to Kings Park Station. Ten more specials from other parts of Scotland also arrived at Kings Park, and two at Mount Florida. A special service was operated between Glasgow Central and Mount Florida for the event, the trains leaving Central Station every few minutes from 1.10 until 2.10 p.m.

Foreign Travel Allowance to Remain at £25.—Mr. R. A. Butler. Chancellor of the Exchequer, has stated that the basic travel allowance for the year beginning November 1 is to be £25 for adults and £15 for children aged twelve and over. The countries where the £25 allowance will be available are: in Europe, Austria, Belgium, Czechoslovakia, Denmark, Finland, France, Greece, Italy, Jugoslavia, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and Western Germany; and include also Argentina, Brazil, Chile, Egypt, Israel, Persia, Peru, Saudi Arabia, the Sudan, and Uruguay. There are no restrictions on the amounts that can be spent by British travellers in other parts of the sterling area.

British Signatories to Berne Convention.—During the past two years representatives of the Ministry of Transport, the British Transport Commission, and the Railway Executive have been attending meetings preliminary to the Fifth Revisional Conference of the Berne Conventions C.I.M. and C.I.V. (the International Goods Traffic Convention and the International Passenger and Baggage Traffic Convention) recently held in Berne (as reported in our October 24 issue). The two Conventions were signed on behalf of the United Kingdom of Great Britain and Northern Ireland by Mr. Denis O'Neill, Under Secretary, Ministry of Transport, at the Parliament Building of the Swiss Federal Government on Saturday, October 25. This is the first time the United Kingdom has signed. Representatives of 20 other nations also signed and the Conventions will be ratified in due course. It is expected that they will come into force on January 1, 1954.

British Railways Awards for Examination Successes.—To encourage British Railways staff to improve their knowledge, the Railway Executive is to make monetary awards to railwaymen and women who pass certain examinations. Railway staff obtaining an

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

REQUIRED by Consulting Engineers for Belgium and the Continent, Engineers experienced in the inspection of railway rolling stock and engineering materials in general.—Box 648, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

A LEADING Mutual Life Assurance Office requires a number of young men for training as outside representatives. Exceptional opportunities for advancement to those possessing a sound education and good personality, and who are prepared to work hard and prove their ability. Write stating age, which should not exceed 30, to Box. No. 645, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

SPLENDID opportunity for Salesman/Buyer U.K. Steel, pipe, machinery. Write full particulars and basic salary required to Box 643, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

LOCOMOTIVE RERAILING AFTER THE WEEDON ACCIDENT. A reprint from *The Railway Gazette*, consisting of 12 pp. in paper cover, describing an interesting and unusual method of Locomotive Reralling. Price 5s. post free. TOTHILL PRESS LIMITED, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s*. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

intermediate degree, or passing the intermediate examination of certain professional organisations, for example, the Institute of Chartered Accountants, will, as an incentive to learning, receive an increase in pay of £25 a year; when the candidate is elected to associate membership of his professional Institution, or obtains a final degree, or passes a final examination, the increase will be raised to £50 a year. This increase will be paid until the recipient reaches a salary of £567 a year. Lump sum payments varying from £5 to £30 will be made to railway staff who obtain diplomas, or certificates from certain educational bodies such as the London Chamber of Commerce or Royal Society of Arts, or pass examinations of the Institute of Transport, Chartered Institute of Secretaries, British Institute of Management, and so on. Over 15,000 railwaymen and women are attending classes this winter in railway operating, accountancy, commercial practice, and other subjects connected with their work.

Institution of Civil Engineers.—Mr. A. H. Cantrell, Assistant Civil Engineer, Southern Region, will read a paper on "Some Major Problems in Railway Civil Engineering Maintainence" at a meeting of the Institution of Civil Engineers, Great George Street, S.W.1, at 5.30 p.m. on Tuesday, November 11.

Railway Service Christian Union.—The 26th birthday meeting of the Railway Service Christian Union will be held on Wednesday, November 12, at the London Midland Region Clerical Dining Hall, Cardington Street, Euston, N.W.1, at 6.15 p.m. Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, will be in the chair at the meeting, during which a Fact & Faith film "Hidden Treasure" will be shown.

Record British Railways Coal Carryings.—The biggest weekly tonnage of deep-mined and opencast coal for six months was carried last week by British Railways—3,271,800 tons. The weekend clearance of coal during the 48 hours ended 6 a.m. on October 27 was also the biggest for six months, 387,770 tons. During the week ended October 18, 213,188 tons of iron and steel were conveyed from the principal steel works and some 291,000 tons of iron ore were carried.

Barsi Light Railway Report.—Gross earnings of the Barsi Light Railway for the year to March 31, 1952, are shown in the directors' report to have been Rs.53,33,230, an increase of Rs.6,41,993, to which coaching traffic contributed Rs.4,71,672 and goods traffic Rs.1,77,494; the increase in coaching receipts was due to the higher rates in force. Working expenses at Rs.41.07.327 were higher by Rs.1,70,466, mainly because of sleepering of track and increased dearness allowances to staff, offset by saving under other heads for coal and stores. With the interest on investments and charging the usual £8,900 for debenture interest, the balance of net profit left is £24,919, which with balance brought forward of £9,249 makes an available total of £34,168. The preference dividend, less tax, takes £1,013 and the interim dividend already paid on the ordinary stock absorbed £7,668. The directors recommend a final dividend of 2 per cent on the ordinary stock, making a total distribution of 4 per cent for the year and leaving £17,818 to be carried forward.

Traders Traffic Conference.—The Traders Traffic Conference 1953 Spring Congress will be held in Liverpool between May 11-13.

Railway Benevolent Institution.—At a meeting on October 22, the board of the Railway Benevolent Institution granted annuities to eight widows and 23 members involving an additional liability of £552 5s. per annum. Forty-four gratuities were also granted, amounting to £478 1s., to meet cases of immediate necessity. Grants made from the casualty fund during the month of September amounted to £509 17s.

South Wales & Monmouthshire Railways & Docks Lecture & Debating Society.—Mr. R. G. Henbest, Estate & Rating Surveyor, Western Region, will read a paper entitled "Town Planning as it Effects the Western Region," at a meeting of the South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, to be held in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m., on Tuesday, November 11.

European Goods Timetable Conference.—The autumn meetings of the European Goods Timetable Conference will be held in Church House, London, S.W.1, on November 3-8. Mr. John Elliot, Chairman of the Railway Executive, will welcome delegates at the opening ceremony at 10 a.m. on November 3; Mr. A. Houska, of the Czechoslovak State Railways (the managing administration of the conference), and Chairman of the conference, will reply.

Value of Sales Increased by Murex Limited.—Shortage of essential raw materials and prior demands at home are stated by Mr. G. P. Joseph, Chairman of Murex Limited, again to have prevented the company from meeting overseas demands in full and although the value of export sales was comparable with the previous year, there was a marked decline in volume. The substantial increase in the value of sales is attributed by Mr. Joseph to higher selling prices necessitated by increases in raw material costs and operating expenses, but there was a satisfactory increase in the volume of products not dependent on raw materials in short supply. At the annual meeting on September 17, the report and accounts were adopted and the final dividend of 9 per cent, making 15 per cent for the year, was approved. A restoration also was approved increasing the company's capital from £2,650,000 to £4,450,000 by the creation of 1,800,000 shares of £1 each.

Serck Radiator Results.—With a final dividend of 10 per cent the total distribution of Serck Radiators Limited for the year ended August 2, 1952, is maintained at 15 per cent. The group profit for the year was £366,394 (against £369,494 for the previous year).

Ministers' Talks on G.N.R.(I.).—Mr. W. V. McCleery, Northern Ireland Minister of Commerce, and Mr. Sean Lemass, Minister for Commerce of the Republic of Ireland, had talks in Dublin on October 24 on the future of the Great Northern Railway (Ireland). They discussed the draft of the Bills to be introduced in the two parliaments to acquire the railway and provide for its joint operation in the future.

Criticism of Transport Levy.—A statement by the Association of British Chambers of Commerce has reaffirmed its opposition to the principle of a levy on road hauliers as proposed in the Transport Bill. The announcement says the association agrees with other statements to the effect that the worst feature of the levy is the intention that some part of its proceeds would be used to subsidise the railways. At the same time it maintains that the principle of an impost on the users of road transport in order to rectify the political miscalculations made through the nationalisation of road haulage, cannot be considered equitable. As any levy imposed on road hauliers would inevitably be reflected in the charges made for the use of road services, the association considers itself justified in publicly expressing this view on behalf of the largest cross-section of industry and commerce in Great Britain, which it represents.

Hurst Nelson & Co. Ltd.: Effects of Steel Shortage.—Mr. Arthur N. Forman, Chairman of Hurst, Nelson & Co. Ltd., stresses, in his statement circularised with the report and accounts, the restriction imposed by the prevailing steel shortage on the company's output and the denial of full use of developed facilities. In its class of production, he states, where processed steel is the main raw material used, progress in manufacture has been affected; largely for this reason, the trading profit for the year ended March 31, 1952, is some £20,000 less than for the preceding year. The board recommends maintenance of the ordinary dividend at 20 per cent, as for

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last year. During the year, Mr. Forman points out, much of the firm's output was supplied to export markets, including Kenya, Rhodesia, the Sudan, Tanganyika, Iraq, Pakistan, and India.

Forthcoming Meetings

October 31 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. "Machine Tool Simplification, Especially as Applied to Horizontal Boring Machines," by Mr. C. A. Sparkes.

October 31 (*Fri.*).—Institute of Transport, Merseyside Section, at the Adelphi Hotel, Liverpool, at 7 p.m. Annual Dinner and Visit of President, Mr. C. T. Brunner.

November 1 (*Sat.*).—British Railways, Southern Region, Lecture & Debating Society. Visit to London Airport.

November 1 (*Sat.*). — Railway Correspondence & Travel Society and Railway Photographic Society. Photographic Exhibition at 25, Charlotte Square, Edinburgh. Open 2-6 p.m.

November 3 (*Mon.*) to 8 (*Sat.*).—European Goods Train Timetable Conference Autumn Meetings, at Church House, Westminster.

November 3 (*Mon.*).—Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 5.30 for 6 p.m. Visit of President. "An Exporter's Aspect of Shipping," by Mr. R. Farquharson.

November 4 (*Tue.*).—Retired Railway Officers' Society. Autumn Luncheon at the Criterion Restaurant, Piccadilly Circus, London, at 12.30 for 1 p.m.

November 4 (*Tue.*).—Institution of Civil Engineers, at Great George Street, London, S.W.1, at 5.30 p.m. Presidential Address by Mr. H. F. Cronin.

November 4 (*Tue.*).—Permanent Way Institution, Leeds Section, at the Leeds Church Institute, Albion Place, Leeds, 1, at 7 p.m. Paper by Mr. M. J. Wardle.

November 5 (*Wed.*).—British Railways, Western Region, London Lecture & Debating Society and Oxford University Railway Society, at Oxford. Debate: "That the Advantages of Standardisation on British Railways Will Not Compensate for the Disadvantages."

November 5 (*Wed.*).—British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, St. Thomas Street, London, S.E.1, at 5.45 for 6 p.m. Display of Transport Films.

November 6 (*Thu.*).—Electric Railway Society, at Fred Tallant Hall, 153, Drummond Street, London, N.W.1, at 7.15 p.m. "Melbourne's Electric Railway," by Mr. C. L. Busch.

November 7 (*Fri.*).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.15 for 7.30 p.m. "The Drummond Locomotives of the Glasgow & South Western Railway," by Mr. D. L. Smith.

November 7 (*Fri.*).—Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. "Some Memories of the North Eastern Railway," by Mr. E. M. Sanders.

November 8 (*Sat.*).—Permanent Way Institution, Manchester & Liverpool Section, at Liverpool. "Manufacture of Switches and Crossings," by Mr. T. Goodley.

November 8 (*Sat.*).—British Railways, Southern Region, Lecture & Debating Society. Visit to London Airport.

Railway Stock Market

There has been no important change of sentiment in stock markets, where small irregular movements again ruled in most sections. The dominating factor was caution on the part of buyers and the main emphasis on British Funds as the best safety-first holding until the outlook is clearer. The City still talks of the likelihood that the Commonwealth Conference next month will propose a wider measure of convertibility for the pound and also plan for rebuilding export trade and gold and dollar reserves. All these factors would tend to add further to the investment merits of British Funds at a time when the industrial outlook is likely to become more difficult to judge, because of growing competition in both home and export markets.

On the other hand, before the end of this year, the gilt-edged markets may be affected by new issue factors. More colonial offers are likely, and before the New Year British Transport and perhaps British Electricity may make new issues. These could check an upward trend in the gilt-edged market, though it is argued that a reduction in the bank rate is likely. This would mean higher prices and a lower yield basis for British Funds and fixed interest securities generally.

Foreign rails have been rather more active, with buyers and sellers in evidence, though price movements were small and showed no particular trend.

Antofagasta ordinary and preference attracted, and strengthened to 11 and 52 respectively. A feature was further buying of Costa Rica ordinary stock on the better trend in traffics, and the price improved further to 7¼, but the first debentures at 61 failed to hold best levels.

There has been much small buying and selling of United of Havana stocks, though profit-taking after recent gains has predominated, bringing the 5 per cent (1906) debentures back to 17. The 4½ per cent Cuban debentures were 42, and the 4½ per cent Western debentures 19, while the preference stock changed hands around 2⅛. Havana Terminal debentures were 73. It is realised that unless the proposed capital reorganisation is approved by each class of stockholder, it may mean that there will be no prospect of a take-over offer from Cuba; but if the scheme goes through, a reasonable offer may be forthcoming. It is assumed that Cuba may be waiting for approval of the capital reconstruction before she makes a move. Moreover it is generally believed that, in any case, the directors would not accept an offer of less than £5,500,000 *plus* an amount to cover debtors in Cuba.

Brazil Railway bonds changed hands at 6½, and San Paulo 10s. ordinary units were easier at 10s. 6d., profit-taking following an earlier small gain.

News of gale damage affected sentiment in regard to Manila Railway stocks, and the 'A" debentures receded to 76. The preference shares were 8s. 3d., while the ordinary shares were dealt in around 2s. 3d.

There was rather more business in Nitrate Rails ordinary shares, which moved up to 18s. 6d., while Taltal were 14s. 9d. Columbia Navigation 6 per cent debentures showed a marking at £2.

Signs once more appeared of speculative buying of old Russian railway bonds. Black Sea-Kuban marked 7s. 6d. and Wolmar 4½ per cent bonds up to £3½.

White Pass and Yukon common shares remained an active feature, but at $22¼ failed to keep best prices; the 5 per cent convertible debentures changed hands around £81. Canadian Pacific eased to $59, but the 4 per cent preference stock held steady at £65 and the 4 per cent debentures strengthened to £82.

There were small movements in the engineering shares, where the tendency has been steady, though buyers appear to be following a waiting attitude, pending the steel de-nationalisation bill. Guest Keen were 53s. 9d., Vickers 43s. 4½d., John Brown 44s. 9d., and Cammell Laird 5s. shares were around 12s. Ruston & Hornsby firmed up to 38s. 6d., Tube Investments were 55s. 6d. and T. W. Ward 72s. 9d.

Among locomotive building and kindred shares, Beyer Peacock displayed firmness at 31s. 3d., Hurst Nelson were 47s., Birmingham Carriage 32s. 7½d. and North British Locomotive 14s. 3d. G. D. Peters 5s. shares strengthened to 17s. 6d., Vulcan Foundry were 23s. 3d., Charles Roberts 5s. shares 21s. 6d., Wagon Repairs 5s. shares 12s. 9d. and Gloucester Wagon 10s. shares 12s. 4½d. Cenral Wagon changed hands around 94s. 4½d.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week, or month ended	Traffics for week: This year	Traffics for week: Inc. or dec. compared with 1950/51	No. of week	Aggregate traffics to date: Total 1951/52	Aggregate traffics to date: Increase or decrease
South & Cen. America	Antofagasta ...	800	17.10.52	£ 165,480	+ £ 16,470	42	£ 6,416,700	+ £ 1,376,220
	Costa Rica ...	281	Sep., 1952	c1,207,759	+ c73,182	13	c4,064,027	+ c360,780
	Dorada	70	Aug., 1952	38,470	+ 1,494	35	273,997	− 14,450
	Inter. Ctl. Amer....	794	July, 1952	$1,032,978	− $15,127	30	$7,977,146	− $2,610
	Paraguay Cent. ...	274	17.10.52	G620,363	+ G297,375	15	G9,362,869	+ G4,087,346
	Peru Corp. ...	1,050	Sep., 1952	$9,688,000	+ $1,755,000	13	$28,850,000	+ $4,333,000
	,, (Bolivian Section)	66	Sep., 1952	Bs.15,428,000	+ Bs.1,024,000	13	Bs.47,406,000	+ Bs.6,011,000
	Salvador	100	July, 1952	c138,000	+ c13,000	4	c138,000	+ c13,000
	Taltal	122	Sep., 1952	$3,351,000	+ $902,000	13	$8,538,000	+ $2,234,000
Canada	Canadian National†	23,473	Aug., 1952	19,081,000	+ 746,000	35	147,991,000	+ 12,221,000
	Canadian Pacific†...	17,037	Aug., 1952	12,953,000	+ 866,000	35	100,059,000	+ 7,048,000
Various	Barsi Light* ...	167	Sep., 1952	20,055	− 4,297	26	189,975	− 25,627
	Gold Coast ...	536	Aug., 1952	253,854	+ 32,678	21	1,434,206	+ 152,894
	Mid. of W.Australia	277	Aug., 1952	54,609	− 6,306	9	105,559	− 8,162
	South Africa ...	13,398	27.9.52	1,929,442	− 57,681	29	50,621,774	+ 1,813,783
	Victoria	4,744	July, 1952	2,062,237	+ 329,462	4	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at $3 to £1

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